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HEALTH AND MORTALITY

AMONGST

EDUCATED INDIANS

KANTA PRASAD

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HEALTH AND MORTALITY

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EDUCATED INDIANS

BY

KANTA PRASAD, M.D., (EDIN).

LIEUTENANT-COLONEL, I.M.S., (RETIRED.)

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TO THE MEMORY OF

THE LATE RAI BAHADUR LALA BAIJ NATH,

RETIRED JUDGE, UNITED PROVINCES OF AGRA AND OUDH

THIS BOOK

IS

DEDICATED

AS A HUMBLE TOKEN OF APPRECIATION, FOR THE UNSELFISH MANNER
IN WHICH HE DEVOTED HIS LIFE TO THE CAUSE
OF INDIA AND HER PEOPLE

BY

HIS LIFE-LONG FRIEND

KANTA PRASAD, M.D.,

Lt.-Col., I.M.S., (Retired)

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PREFACE.

Any one who is acquainted with Modern India, and has been in the country for any length of time, must have, again and again, been struck with the premature and sudden deaths of young Indians, especially among the educated and well-to-do classes.

Towards the end of 1911, Rai Bahadur Lala Ramanuj Dayal, a young public-spirited citizen of Meerut, and an intimate friend of Lala Baij Nath (Retired Judge of Agra) suddenly died. This loss Lala Baij Nath felt *so* much and it made such a deep impression on his mind that he determined something should be done to enquire into the cause or causes of such premature deaths and see how far the *Evil* could be eradicated. He, therefore, addressed a circular letter to all the noted authorities, medical and non-medical, in India, soliciting their opinions as to the causes of these deaths in the different provinces of India, and enquiring if these could be prevented to a certain extent, if not altogether.

I retired from the Indian Medical Service in June 1913, in England, on the expiry of my leave there, and, as my family was with me, I settled down in England for the time being. During the winter of the same year I had, however, to visit India and then met my old friend, Rai Bahadur Lala Baij Nath, at Allahabad. He showed me the opinions he had collected and asked me to arrange them in a readable form, embodying my own experiences with them. The request was so patriotic and so unselfish that I readily consented to do my best to help him in the undertaking. Most of the opinions expressed in this book are, therefore, those held by the leading authorities in India.

The manuscript was ready in October last and, just when I was going to send it to Lala Baij Nath for his perusal and opinion, I heard the sad news of his death. I wish I could express my sorrow at this sudden and unexpected loss of a most valuable friend, and the least I could do in these circumstances was to commemorate his memory by dedicating the book to him as a token of my appreciation for the good work he always did for India and her people throughout his life.

My object in writing this book and expressing my opinions also, poor though they be, is a double one. As a Hindu myself, I love my country and would like to see her flourish morally and physically to such a high degree that she will be, to the present and future generations, as a beacon light on a mountain top, a guide and an example not only to us, but also to other nations that have, hitherto, despised or treated us slightingly. I also love my fellow-countrymen, many of whom are in no way inferior to the greatest intellects of the farther East or the farther West. It seems such a pity *then* that these bright intellectual lights should be extinguished before half the oil in the lamp of life is consumed. I have tried to point out what, and how much, people can do for themselves with a very little trouble and care.

Are the causes of premature deaths preventable? They are! Read the reasons for these premature deaths carefully and do your best to save, not only yourselves, but the future generations of India—our common mother. If, by my humble directions even one or two valuable lives only be saved, I shall be more than amply repaid for my exertions and anxieties.

I take this opportunity of thanking Major B. D. Basu, I.M.S., (Retired), of Allahabad, under whose direction the book has been printed, and my friends Messrs. A.J. Robertson, Bar-at-Law, and E. P. Cloney, Retired E.A.C., Burma, who have kindly corrected the proofs for me.

INSEIN, K. P.

1st July, 1915.

PRESE
BY THE EDITO
B. M.
ITISH MEDIC

HEALTH AND MORTALITY AMONGST EDUCATED INDIANS.

Chapter I.

INTRODUCTORY.

When an Indian goes to a place and breaks down in health, it is customary for him to say that the water of the place did not agree with him or its climate did not suit him. This, in other words, means that he was a helpless victim of circumstances over which no one could have had any control and that the matter was beyond his power. But advances made by sanitary science during the last 50 years and great reduction which has taken place in sickness and mortality all over the world where sanitary measures have been employed, leave no doubt that most of the sickness and mortality prevalent among mankind is preventable, and is neither due to water nor to climate, but to insanitary conditions of the place and individual carelessness, and that within certain limitations a community can determine its own death-rate. God means us to be healthy and happy, and many illnesses come not because He sends them, but because through ignorance we break His laws and make bad use of His good gifts. He gave us clean earth, clean water, and clean pure air; but because people, for want of knowledge, live in dirty overcrowded houses, drink dirty water and breathe foul air, illnesses, such as cholera, plague, fevers and small-pox break out and carry away thousands of them every year.

At one time, these diseases used to be very common in Europe also; but under improved sanitation have now almost disappeared and the death-rate has gone down so low that in civilized countries it has become an axiom that a population with a death-rate over 17 per mille is not under correct sanitary conditions. Death-rate for all England, for instance, for the year 1913 was only 14·60 and has been below 17 for a good many years.

In ancient India, during the period of Hindu civilization, the Institutes of Vishnu and the Laws of Manu dealt carefully with the hygiene of food and of water, private and public conservancy, suppression of disease and its prevention; and epidemics such as those of cholera and plague were very rare in those days. But with the degeneration and deterioration of our race, decline of education and spread of ignorance, individual and public hygiene became neglected and the country became the hot-bed of all sorts of infectious diseases.

The earliest statistics of modern times are those compiled by Dr. Strong of Calcutta in 1837. According to this authority the average death-rate in those days varied from 51 to 80 per mille, and 23 per cent of the deaths was due to small-pox alone!

Sickness and mortality among the troops in India was also great and the loss to the Government on this account was so heavy that in 1859 a Royal Commission was appointed to enquire into the sanitary state of the army in India, and the reforms initiated by this body have now reduced the death-rate of British soldiers from 69 then to 4·62 in 1912, of Indian troops from 20 to 4·42, and of prisoners, who enjoy no luxuries of any kind and are generally drawn from lower classes of people, from 82·7 to 30·8 per mille. Sickness also has gone down in the same proportion. Improvement in the health and mortality of the troops has, thus, been remarkable and must have increased the efficiency of the soldiers materially while, the decline in the death-rate means a great economy in human life and large saving in actual expenditure to the Government.

What is possible for the army and prisoners, is also possible for the civil population, if the same ways and means be available. But India is a land of heterogenous population with various creeds and castes, some of which are so much steeped in ignorance and prejudice that they look upon all innovations with an eye of suspicion and prefer death to submitting themselves to anything new.

The science of preventive medicine is of recent growth, and even in countries where rulers and ruled belong to the same race, modern sanitary principles are not enforced at once, and Government has to wait until a demand is created. In India the present situation is unique. Majority of the Indian people are fatalists and being ignorant of modern preventive methods demand nothing. Those who understand the blessings of sanitary science are a mere drop in the ocean, and their voice is not heard. Government machinery, therefore, moves very slowly in sanitary matters, with the result that the death-rate for all India is still very high. It was 34·85 per mille in 1911, or more than double that in England.

It is not to be understood that no sanitary improvement has taken place in the country as a whole. There is no doubt that some improvement has been effected in sanitary conditions all over the country, and this can be measured in lessened mortality, and shows what can be done in the future if such methods were extensively adopted. The death-rates for 1881-91 show that, notwithstanding the existence of plague between 1897 and 1911, there has been a saving of 613,936 lives in 1901-11 decade, had the proportional death-rate of 1881-91 been maintained, in 1911, and since 1897 about eight millions have died of plague!

While much has been done, a great deal more remains to be done. Application of modern sanitary principles in India is at present confined to the Municipalities and 90·5 per cent of the population is still without sanitary care. Of preventable diseases in 1911, fevers claimed over four million deaths of which one million at least may be ascribed to malaria; plague claimed 7,33,000, cholera 3,54,000 and small-pox 58,000. Of the 64 large towns in India, seven had a death-rate exceeding 70, six exceeding 60, five had 50, twelve 40 and nineteen above 30!

According to the census report for India, 1911, one in every fifth child born in Bengal dies during the first year of its life, and in the United Provinces of Agra and Oudh, one in every four. In Bombay city, according to Dr. Turner, the Health Officer, the infantile death-rate varies from 379 per mille of births for the entire city to 419, according to locality. For India, as a whole, the rate is 213·97. In Norway and Sweden it is only 50. In Hampstead, the part of London where I live, the rate is also 50, and it is considered that any rate exceeding 80 per 1000 births is unduly high. Excessive infant mortality in every civilized country is now-a-days taken as a sure sign of racial degeneration.

The net result of such mortality upon the expectation of life at birth of the Indian male is, as Mr. Gait points out in the census report referred to, 22·59 years against 46·04 for English males, *i.e.*, at birth the Englishman has the expectation of being a citizen at the most useful ages for a period of 23½ years more than the man in India has!

In London, 150 years ago, the annual death-rate used to be as high as 80 per mille, and sanitary matters were very much the same as they were in India in 1837. The Englishman's expectation of life, then, could not have been any higher than that of an Indian at the present day ; and if he has improved his, there is no reason why we should not be able to improve ours, if we only do what he has done for his health.

There would be nothing surprising to me if the heavy death-rate I have referred to was no higher amongst the educated classes. But such is unfortunately not the case--the death-rate is, if anything, higher. An educated youth in India, instead of being in a better position to maintain his health by virtue of his knowledge and education, breaks down far too early and does not enjoy life even to that extent which an ordinary illiterate workman does. Those who have made a special study of the subject are of opinion that more than 50 per cent of our educated youths are potentially tuberculous and die before their time. Others, who escape this evil, contract diabetes before they are forty, and are carried off before they are sixty. The question, therefore, is to find out why it is so, and suggest, if possible, some ways and means to save the young men from this calamity. An attempt to this effect has been made in the following pages.

Good laws and improved sanitary conditions are no doubt very essential to better the lives of the masses ; but prevention of most of the evils lies in our own hands, if we only had sufficient knowledge how to do it and sufficient energy for its application. Appreciation of certain natural laws which require implicit obedience from all human beings is very necessary for us all, as their disregard brings, sooner or later, sure penalties of sickness, misery and mortality.

From the nature of the enquiry it is evident that the scope of this work is somewhat limited, and if we bear in mind that, as pointed out in the census report of India, 1911, Mohamedans and Christians in India, in point of fecundity and longevity, are much better off than their Hindu brethren, most of the remarks which follow become specially applicable to Hindus.

Chapter II.

HEREDITY.

The primary need of every individual is a healthy mind in a healthy body ; and as a nation is nothing but a group of individuals born in the same country and exposed to similar conditions of existence which mould their habits and customs according to their necessities, no nation can be built up without a high average soundness of body and soundess of mind. It is, therefore, very necessary to note those factors which improve or impair what constitutes a race.

Most parents recognize that it is their duty to provide their children with food, clothing, education, a start in life or money to live on ; but few remember that it is just as much their duty to do the utmost to provide them with sound constitutions, healthy bodies and active brains. Few parents know that it is largely in their power to influence for good or evil their children's health, both mental and bodily, by the conduct of their own lives and by their own habits.

By some mysterious working of nature the poison in parent's blood poisons and damages the living cells from which the offspring comes into life. "The fathers have eaten sour grapes and the children's teeth are set on edge," says the Old Testament. Dullness and feeble-mindedness in the child are due to the damage done to the reproductive cells of the father, and from the poisoning of these germ cells such diseases as Hysteria, Epilepsy, Tuberculosis, and Syphilis may appear in the child.

No woman whose blood is not properly purified and enriched can expect to give her child the best chance of a healthy after-life. Anything that injures and impoverishes the mother's blood will react upon the child and injure its constitution. Such children have no stamina with which to resist any difficulty that comes in their way, in the shape of slight cold or some digestive trouble, and so they quickly succumb. What we get out depends on what we put in, and no mill in the world can extract wheatflour from barley.

Every student of ancient history knows that the earliest conquerors of India were Aryans, the forefathers of the present Indians, and every Indian is proud of his ancient philosophy and literature which leave no doubt that the ancient Aryans must have been a highly civilized race. If the present people of India are unworthy representatives of their forefathers, something must have happened which has brought about the fall of this mighty race.

This fall is not peculiar to India by any means. History tells us that Greece, Rome and Egypt are very much in the same position. Wherever problems of heredity and environment have been neglected, this fall has surely been brought about.

Biological factors are dominant in the evolution of mankind, and they throw a flood of light on the rise and fall of nations, on racial progress and national degeneracy. A horse-breeder, for instance, would never think of wasting his labours over a poor breed; and if racial efficiency in man is to be maintained, the same principle has to be applied. Progress of the race demands a dominant fertility in the *fitter* stock; and if that principle is not recognized as axiomatic, then the race is bound to degenerate until it rises again by natural selection. A clean body, a sound mind, a vigorous and healthy stock are, therefore, the essentials of a healthy race.

Physical development appears to be based on three main things:—

1. *Initial capacity.*—This depends on the condition of parents, and some people inherit greater tendency to the development of strength than others. Hygiene, Education and Healthy Environment will, for instance, never make a soldier of a Jew, while they decidedly improve a Pathan or a Rajput.

2. *Work of the individual himself.*—Physical development means muscular development. By work, alternated with rest, we develop our muscles and become strong and muscular. The more we exercise ourselves the more useful we become to ourselves, to society, and to the nation at large. A man who leads a sedentary life, no matter how good his circumstances, is always suffering from something or other till "he shuffles off this mortal coil," after leading a most miserable existence. Indolence is, therefore, the greatest enemy of mankind, and so-called "rest" really means rust.

3. *Environment.*—This is a great factor in physical development, and Darwin, the great scientist, describes life as nothing but an accommodation to Environment.

Nations which have been in close contact with other nations and constantly engaged in warfare, develop stronger individuals than those which are more isolated. The more marked the differences amongst the competitors, as regards their nationalities, the keener is the spirit of competition, and the struggle for existence naturally becomes the hardest. The fittest survive weaklings and the worthless are weeded out. Such was the state of affairs in India in ancient days, and such is the state of affairs in Europe now, and a majority of the people are therefore useful members of society. In the present state of India, on the other hand, a long peaceful life, without any regard to race culture, has produced all sorts of worthless people.

It is not to be understood that fighting is the only way nature has provided to produce a stronger race. Voluntary exercises and sports and hard work are equally efficient for our development. The poor work harder for their living and are always stronger than those born with a "silver spoon in their mouth." Amongst the lower animals, those which have to go in search of their food and have difficulty in getting it, are always stronger than those whose food lies within easy reach. Prosperity seems to sap the vitality of a race, and the struggle for existence in trade or in war seems to be the best tonic nature has provided for the upkeep of a nation.

Cold countries produce stronger races, because people there can take more exercise without getting tired, and their muscles naturally get more developed. It is familiar to us all in India that we can hardly take a brisk walk for an hour without getting tired and being bathed in perspiration, while in London one often walks from morning till evening without feeling discomfort. The inhabitants of temperate countries and mountains and hills have, therefore, a decided advantage in physical development over those of the tropics.

Furthermore, we know that heat and light form the chief food of plants, and we find that vegetable is to be had in greater abundance in the tropics than elsewhere. Thus people in tropical climates are well provided in the matter of food, and as necessity is nature's great inducement to work, this lack of necessity tends to make them careless and lazy, and they naturally deteriorate and get easily conquered by needy foreigners.

In countries where the ground is hilly and mountainous, the inhabitants have to work harder to gain the necessities of life and are naturally stronger and better developed than those who live and work in the plains.

In cold and hilly places more food is required to keep up the heat and energy of the body, and on an average everybody consumes more food. This also must add to the strength of the body.

As in physical development, so in intellectual development the same three factors seem to play an important part:—

1. *The initial capacity.*—Some people are, by birth, better observers than others; some are born with better memories owing perhaps to the education and culture of their parents; and it is known all the world over that children born of educated parents and brought up in well-managed homes are distinctly different from those born of uncouth and untidy parents. Such children differ in their manners, their expressions, and in their ambitions. And here let it be noted that the influence of the mother appears to be stronger than that of the father, as most of the great men that we read about had exceptionally clever mothers. Many standards for judging the civilization of nations have, from time to time, been devised and suggested, but the majority are of opinion that the most decisive and crucial test of a nation's prosperity lies in the condition of female education. Those nations who possess most refined and learned women are the ones who are the most civilized and successful in the struggle for existence.

2. *The work of the individual.*—Some people make good use of the already possessed intellect by educating themselves and following a profession which necessitates the employment of their intellectual faculties, while others do nothing and lose their opportunity.

3. *Enviroment or surroundings.*—These again form the most important factor which determines the intellectual culture of various races.

Complexity of the path acts as a tonic and makes one think. People living on land surrounded by water have to learn to make boats in order to carry out the duties of every-day life or to fight with their neighbouring enemies. Constant fear of enemies makes people alert. That we and our education are affected by our surroundings cannot be denied.

One of the strongest instincts of human nature is the desire and power of imitation. The usefulness of a school depends more upon competent class-fellows than upon learned teachers. The habits, manners, and morals of boys and girls are strongly influenced by their playmates and close associates whom they imitate and try to compete with. It is not the man who makes society, but society which makes the man. The very atmosphere of an educational centre has an educating influence on its inhabitants. Man is thus a social animal, and to secure his individual progress, we must make the society as a whole progress, *i.e.*, if we want to be progressive, we must get into progressive surroundings.

The great truth enunciated by ancient Hindus that the power which exhibits itself through various things, organic and inorganic, in this universe is the same, has now been admitted by modern scientists. Charles Darwin has shown that there is no such thing as abruptness in nature,and that if one examined carefully he would find connections and links from the simplest to the most complex organisms. But as to the nature and character of this power or vital force, called life, no one has been able to understand anything. Everybody is convinced of the fact that ancestral traits are inherited by the offspring ; but the subject of heredity no one has been able to understand. It is incomprehensible how a microscopic cell can inherit the physical characteristics of the parents—the features, the eyes, the nose, the ears, some not only in their normal form, but in their abnormal and deformed conditions as well ; besides this, the intelligence, the memory, the ability, the liability to and the immunity from disease, the moral character, the mental temperament and a thousand and one other things are equally transmitted.

These questions of metaphysics had very early attracted the attention of the ancient Aryans, and they had come to the conclusion that the human body was a subordinate and transitory thing, while the real master was the soul which was immortal. They believed that it was the soul and not the body which received and retained all the impressions of the foregoing traits and characters, and that the body was only a house which it built for the manifestation of its power. The more evolved the soul, the more evolved was the body it occupied.

This is what is known as the theory of transmigration of souls based upon the law of Karma. It means that there is no such thing as forgiveness in the Court of the Almighty. One must reap as one sows, and punishments and rewards are given in the form of evolution and involution or progression and retrogression.

With Japanese, race-preservation and race-betterment has assumed the form of a religious cult ; and the national spirit of Japan demands a healthy, able child from fitting parents.

False pride in ancestry, as some of us have, is not of much use, but the man who comes of a stock sound in body, able in mind, and who knows that by uniting in marriage with a like stock he will hand down that heritage to his children, has a legitimate pride in ancestry and is worthy of respect of those who have the welfare of the nation and racial betterment at heart.

Chapter III.

MARRIAGE.

If the quality of the future offspring is not borne in mind, a marriage covenant becomes meaningless; and it is one of the greatest misfortunes of India that this point is entirely lost sight of now-a-days. Marriage in India is universal, and, with the exception of a few, early marriage is still in fashion. Brides are selected by the parents, not from a physical or mental point of view, but from monetary and social considerations. To some parents the marriage of their children is a source of income, and to others it is a point of honour. To a Hindu parent, the marriage of his children is more important than their education, and he takes it as a disgrace in the eyes of his fellow-castemen if his children do not get married in childhood. To see the marriage ceremony of their children is one of the highest ambitions of Indian parents, and on no other occasion do they lavish money so open-heartedly as they do on marriage occasions. A son is a religious necessity for a Hindu.

In days gone by, when might was right in India and high officials used to take poor people's daughters away by force, people, to protect the chastity of their womenfolk, had to get every girl married as soon as possible. By doing so, they not only saved their own honour as well as that of the girl, but doubled their forces by creating relations by marriage and were, thus, in a better position to face the high-handedness of officials in power. In the present settled state of the country, there is no such necessity now.

Another reason which, in my opinion, gave rise to the early marriage custom in India was that, since the decline of education and spread of ignorance the country got into a gross insanitary state and epidemics, such as small-pox, measles, cholera and plague, began to break out from time to time and decimated the inhabitants by thousands. People not knowing what those epidemics were, took them as acts of Providence and did not know how to prevent this fearful loss of human life. But the instincts of race-preservation taught them to produce material in larger quantity to replace the loss. Nature has now revealed some of its secrets to mankind, and we now understand that disease does not come from Heaven, but is the result of our neglect and that most of the epidemics which carry away human beings are entirely the result of our own doings and, therefore, preventable. Through the application of modern sanitary principles, sickness and mortality in mankind have been reduced materially everywhere, and if there is any fear of race extinction now, it is not from want of material, but from its *poorer quality*. There is, therefore, no necessity of producing human material in a large quantity which cannot but be poor in quality.

Early consummation of marriage, thus, serves no useful purpose now-a-days, and should be avoided.

In every civilized country, marriage is a very serious step which a man takes during his lifetime ; and, before he takes this step, considers the question from every point of view, especially whether he will be in a position to support his wife and children, and in case anything happens to him, whether he will be able to leave them in ordinary comfort after him. In India, among the Hindus, this obligation is still more binding, as according to Hindu Law marriage is a sacrament and there is no such thing as divorce. A marriage is for life and, good or bad, has to be tolerated.

Everywhere there are three classes of society—upper, middle and lower ; and as marriage is essentially a social question, it has to be studied in these three aspects.

Upper classes are, as a rule, blessed with money and property. To *learn* in their case is not to *earn* ; and, as they have sufficient means to support a wife and their object being to get an heir to whom the property might descend, there can be no objection to their getting married and settling down as soon as they have attained majority which, from a medical point of view, is any time after 18. Money is said to be the root of all evils, and if it is not used in a right manner, it is apt to be misused. The sooner a young man with means gets married, the better. Wife and children give him something to think about and keep him away from other temptations.

Lower class people, by which I mean working classes, do not trouble much about learning, and their object in marrying is not to have an heir, but to have a working companion ; their mind is so much concentrated on earning their daily livelihood that they are not intemperate in the matter of sexual indulgence. All their work being muscular, there is no mental strain; and it matters little at what age they marry after they attain majority.

It is only amongst the middle classes who are the brain of the country and who have to earn their living by hard study that the question of marriage is a serious matter. Early marriage in their case is something like putting the cart before the horse and interferes with the growth of a spirit of enterprise among youth. A boy who desires to earn his living by some profession or business must equip himself well for the future battle of life and this cannot be done much under 25. For the average man 25 years, therefore, is a good age to marry at. By this time he knows exactly how he is situated and what his prospects in life are. No man of this class, in my opinion, has a right to marry if he is not able to earn his own livelihood. It is all very well for princes and rich people with unlimited means to marry when it suits them; but for the average middle class man the question of means ought to be very serious. No one would think of leaving those whom he loved best, without means after his death.

In an agricultural country like India living was, formerly, cheap, and under the joint family system the comfort of the dependents was sufficiently secured; but now the conditions have entirely changed. Incomes have decreased; money does not go as far as it used to formerly; people have become more luxurious, and living has, all round, become more expensive. As steamers and railways have opened out the country, members of the same family go to different places to make their living, and the joint family system under these altered conditions cannot be maintained. One cannot, therefore, imagine anything more detrimental to the interests of a school-boy than an early marriage. Mental strain at the school is bad enough, but to invite a boy of school-going age to indulge in sexual matters is, to my mind, criminal. It is to take him away from his legitimate work and start him on an undertaking for which he is not yet fit and which, to say the least, is neither profitable to himself nor to the community he belongs. In fact, it is a gentle means of ruining his future prospects and undermining his constitution. Marriage before 16 has a suicidal effect upon health, and is prejudicial to physical development. Instances are not wanting where a bright and intelligent boy, with a shining career before him, has suddenly come down soon after his marriage; and it is only natural. Before marriage, he has nothing to think of except his books, and like a good boy he devotes all his time, heart and soul, to his studies. All of a sudden his attention is distracted, Cupid appears on the scene, and he, like himself, makes the poor boy blind! With the very best intentions and strongest will-power, he cannot help going astray. Some of his time is bound to be wasted and his chances of success are proportionately marred. He must fall behind in the competition with his unmarried colleagues. He would be an angel if it happened otherwise.

In all civilized communities the custom from time immemorial has been that a student, regardless of other matters, is to finish his education first, prepare himself for the battle of life, and then get married; and no religious books teach these principles more forcibly than do the Hindu Shastras. The name given to the student (Brahmachari) itself shows that the first principle of student life is "Brahmacharya," and no body could be "Brahmachari" without "Brahmacharya." The Laws of Manu repeatedly point out the value of continence (Brahmacharya) and Laksman, the brother of Rama, is held up as an ideal for every young Hindu. The value of a thing unfortuately is not appreciated until it is lost, and the same, I am sorry to say, is the case with Brahmacharya. It is only those who have lost it that appreciate its value.

Early marriage not only injures the prospects of a school boy by diverting his attention to affairs with which he should have no concern, but also ruins his constitution. He is young and immature and does not understand what excess means. His parents, in fact, all his so-called well-wishers, expect a baby from him, and marriage gives him unlimited license for over-indulgence, with the result that under mental strain and sexual indulgence he soon breaks down. By burning the candle at both ends he is soon exhausted, his vitality is lowered, his memory blunted and diseases, such as Neurasthenia, Tuberculosis and Kidney troubles soon get hold of him. Unnecessary responsibility is thrown on his unprepared shoulders and, in case of death of his parents, he is landed in pecuniary difficulties, to get out of which he has to leave his studies and seek an employment, which keeps him from hand to mouth for the rest of his life. His whole life becomes a life of worries and anxieties. A Titan is borne down by a load of care!

Early marriage has also a demoralizing effect on the young lad. In all civilized countries the young man is entitled to have a voice in the selection of his life companion; and literature shows that the same was done in India in her ancient days. A young man, in order to win the bride of his heart, had often to go through a severe ordeal, and a girl, to attract young men of distinction, had to acquire certain qualifications. Every one knows that the pleasure of life consists in the pursuit of an object, and not in the possession of it. A hunter is never pleased if the game stands in his presence, and no one would think of shooting a tiger in a menagerie. It is the pursuit, and not the object, which stimulates one's ambition and brings all one's finer qualities into play. It is the struggle which adds value to an article. The keener the struggle for an article, the more is it appreciated. Early marriage takes all that pleasure away out of the young man's hands and disarms him of manliness. A wife is provided to him without the slightest effort on his part, and he may or may not appreciate her. It is not a question of "faint heart never won fair lady," but faint or brave, everybody gets a lady tacked on to him. All those finer qualities of heart which win a wife lie dormant in him, and the result is that, while some make the best of what has been given to them, others get discontented with their lot; and when they have means of their own, they either fall into bad society or contract another marriage. This latter danger is still more so now-a-days, when so many Indian youths go abroad to improve their prospects and mix with the girls of other countries. Every well-wisher of India must have noticed painfully how frequent these mixed marriages have become now-a-days, and what these marriages have led to. Personally, I am not aware of one with happy results, and granted that some did improve their social prospects and worldly happiness, by discarding their wife of childhood and marrying a foreigner, they, I am sure, are the last to admit that they have done justice to the unfortunate wife who has been set aside. They try to justify their act by saying that it was not their fault, that they were married against their wishes, that they knew nothing about that marriages when they were married, that they do not see why they should suffer for the rest of their lives, that Indian wives were not educated and therefore were no companions to them, &c., &c.; but they never for a moment believe that the old wife has been treated fairly. Mohamedan and Christian girls might get a divorce and be thus set free; but there is no such thing as divorce in Hindu Law. Through no fault of theirs, these Hindu girls are doomed to unhappiness for life, and is there a Hindu woman who does not look upon her husband as a source of happiness? No woman in any other part of the world respects her husband so much as a Hindu woman does, and Hindu women consider that without their husbands they become outcasts in their own community and have lost spiritual happiness for ever. To inflict punishment on innocent beings is a cowardly act, and must be demoralising in the long run; and, if there is justice in Heaven, a community which encourages such acts is bound to be punished eventually.

It is not likely that two wives would live in the same house; and as the means of the best educated Indians are also limited and India altogether is now a poor country, it is not likely that the young gentleman would be able to provide two establishments, so as to keep his Indian wife in comfort. As an act of grace, he might make her some monthly allowance; but the chances are that she will either be left on the hands of her own parents or on those of her husband's relations. Treatment like this must be very degrading to a girl who has any sense of self-respect; and, to say the least, she or her relations cannot have any regard for the other girl who has brought all this unhappiness to her.

It is partly on this account and partly due to other social reasons that a foreign girl is never received kindly in Indian families.

If the reception given by Indian people to a foreign girl is cold, that given by her own people in India is in no way warm. She is looked down upon as one who has degraded herself by mating with one of a subject race and is snubbed on that account. Very often her mind is poisoned against Indian people to such an extent that the peace of her own home is disturbed. Her children are labelled as half-castes and are remembered as "persons having vices of both and virtues of none." Her sympathies are naturally with her own countrymen, and to court their good-will she has to believe to a certain extent in what they say.

About the girl herself, little need be said. Very few European girls know anything about Indian society. They know that chances of marriage in their own country are very few. They see a young foreigner in borrowed plumes, dressed exactly like their own countrymen, speaking their language fluently, and his manners in their eyes are charming. Girls in Europe have to earn their living in the same manner as boys do. Marriage to them is a profession, and not a sacrament. They know very well that if they cannot get on with their husbands, separation and divorce are always open to them. By marrying a foreigner they have, thus, nothing to lose, and the moment they see a chance of bettering their prospects in life they readily accept the proposal and leave the solution of the rest to the future. They go to India with their husbands, and if they find something unsuitable, they either separate or run backwards and forwards between their country and India. With the death of their husbands, they invariably return to their country and pass their days, either by keeping boarders or doing something else. They have very little in common with India, and any hope of love between them or their children and Indians is, to my mind, out of the question.

Most of us know the treatment meted out to Indians by Europeans; and let it not be understood for a moment that European girls are above racial prejudice. They have it as much as any body else, and their marriage to a foreigner is purely a business affair. If they get a chance of improving their prospects they will overcome this prejudice; otherwise, other things being equal, they will sooner marry their own countrymen than a foreigner.

Effect of foreign girls on the Indian Society.

The question of foreign girls superseding Indian girls as wives has also an evil effect on Indian society at large. If a majority of our educated youths were to marry foreigners, a serious social question would arise as to what is to become of our own daughters and sisters. People still hesitate to educate them, and even the most liberal-minded educated Indians do not like the idea of keeping their girls unmarried after the age of 15 or 16. This allows no time for a girl to receive higher education. There are very few children who begin to value their books before the age of 14, and even a most promising girl can hardly learn much in the course of 2 or 3 years. An Indian girl, therefore, is not, at present in a position to earn her own living or to retaliate and secure a good husband outside her own country; and if her own countrymen begin to neglect her and she is not allowed time to acquire higher education she must remain content in an inferior position.

In England and other civilized countries where boys and girls are given equal facilities to educate themselves, a wife is a very important person at social entertainments and plays her part distinctly to the advantage of her husband's interest. She is untiring in advancing his cause; and many young men, barristers or doctors, acquire reputation merely through the hospitality and tact of their wives. An educated wife of cheerful disposition is thus a distinct advantage to the young man; and as good comes out of every evil, I sincerely trust that this supersession of Indian wives by their foreign sisters will have a wholesome effect on the Indian community at large, and Indian people will appreciate the force of higher education for their girls.

Early marriage ruinous to parents.—If early marriage is detrimental to the interest of boys of a school-going age, it is ruinous to many of the parents financially. To be in debt is said to be one of the traits of an Indian character; but if these debts were to be analysed my impression is that at least 90 per cent of them could be traced to marriage expenses. At no time does an Indian spend his money so generously as he does on the occasion of his children's marriage. If he has no cash, he does not hesitate to borrow, and there is no stigma attached to it. Those who have borrowed money know it to their cost how easy it is to contract a loan and how difficult to repay it. The average man breaks down under this pressure, and there are cases of middle class people, within the knowledge of most of us, where the first loan was contracted at the time of marriage and it eventually led to the sale of whatever property the poor man had. Had the same money been invested in some profitable undertaking the family might have lived in prosperity. Very often child-wives die and boys have to be married again, and when boys die the girls become child-widows, the number of whom, according to the census report of 1911, is 8,000,000. Apart from the bad moral result which enforced widowhood leads to, it means unnecessary expense which, under the present state of the country, ought to be avoided. This huge band of child-widows is under a curse for life and is treated as socially outcasts. They are thrown on the hands of their relations to pass their days and simply work as domestics, all their future hopes being blighted through no fault of theirs.

Infanticide.—It was on this account that the inhumane custom of Infanticide had found its way into certain sections of the Indian community. People proud of their ancestry could not afford the marriage expenses of their daughters and partly to save themselves from the disgrace of poverty and partly to save the girl from enforced widowhood, they thought it just as well to despatch her off when she was a few months or even a few days old.

Early marriage disastrous to offspring and causes premature decline and death.—The effects of early marriage, as can be surmised, are disastrous to the offspring, as a stream can never be purer than its source. It is within the experience of most of us that, where early marriage has taken place at the age of 15 or 16, the children generally die within the first year of their existence. It is one of the most common causes of infantile mortality in India, and in no other country is infantile death-rate so high as it is in India. In certain parts, nearly half the infants born perish within the first year of their life, and most of them belong to immature parents. Girls who become mothers before the age of 18 do not possess sufficient vitality to secrete enough milk for their babies. Infants who survive must therefore remain weak and flabby for the rest of their lives. In the modern struggle for existence, if we wish to improve our race and desire to hold some place on the stage of this world, we must see that the source of our race is strong, our stock good and children clean and healthy. No reform is possible without the restoration of the manhood of the nation, and all classes of people should see that boys are not married before they are mature.

Life insurance and marriage.—The simpler the remedy, the more is it neglected! We all know how fond Indian people are of Government appointments, and we also know that no Government appointment is given without a physical examination. But no one thinks of consulting a doctor at the time of betrothal, although we all admit that a union of two persons for life is much more serious than any Government appointment. The medical profession is now well-developed in India and good doctors are seen everywhere. It is a wonder to me that a remedy so simple is so painfully neglected. A health certificate is not only a token of good health, but it gives a person a chance to know if there is anything the matter with him. Very often people are not aware of a disease when it is in the early stage, and discover it only when it is too late. A stitch in time saves nine, and a lot of suffering can be avoided and many lives saved if the disease is detected early enough. Occasional medical examination by the family doctor is, therefore, a wholesome practice, and especially when marriage is about to take place.

Medical examination before marriage might sound an innovation, but in all civilized countries now-a-days people generally get their life insured before marriage. This is not only a guarantee of good health, but also makes provision for the family, in case of unexpected death.

Age at marriage.—It is very often said in civilized countries that it should be considered criminal if people marry under 25 or over 70. But as circumstances vary so much and people marry with different objects and marriage being mainly a social question, no hard and fast rule can, in my opinion, be laid down as regards the age at which young people should be married. From the medical point of view any person after 18, provided he is in a good state of health, is mature enough to get married; but everything depends on the social position and occupation of the man. In every civilized community the rule followed is training first and marriage afterwards. Rich people in Europe and America who have no pecuniary anxiety marry after 20, whenever it suits them; and those who postpone marrying till late in life, do so on personal grounds, and not in the hope of producing stronger or healthier offspring. In fact, marriage delayed till after 20 does not improve offspring in any way; and late confinement in women is generally more difficult and dangerous.

The middle classes in England and other civilized countries have to go through the ordeal of training first, in order to earn their living. The young man has to learn to stand on his own legs before he thinks of getting married. It is no part of the parent's duty to find a wife for him or maintain her on his behalf. Marriage is for the young man's benefit and pleasure, and he should find means to support his wife. It is very seldom that professional studies or business training are finished before the age of 25, and as it takes four or five years more before the young man lays by anything, he does not think of getting married before the age of 30 or even 35. He then knows exactly how he is situated and proceeds accordingly.

Providence has somehow allotted the earning part to man. He has to earn his bread by the sweat of his brow, and if he marries, his wife expects him to support her. In no country or community is a wife expected to support her husband, and every self-respecting man considers it a reproach to live on the earnings of his wife. Girls themselves are conscious of this and say that if they are to earn their own living, what is the use of marrying? As regards age, what holds good for young men, cannot, therefore, hold good for girls. Education in their case is only an accomplishment; and when they earn anything, they do so for their own sake and not to maintain anybody. Any girl after 18 is therefore fit enough to marry, if she wishes to do so.

Working classes follow no principle anywhere. They are a desperate, ignorant and casual lot. They marry at all ages and risk everything. Husband and wife both are working companions, and one helps the other. There is no question of mental strain or race culture in their case.

Early marriage does not keep every boy steady.—One of the objections raised against postponing the age of marriage till the school or college period is over, is that boys will go wrong. It sounds to me like providing a liquor shop in a place, as there is danger of some of the inhabitants getting liquor from elsewhere. Everything depends upon the moral strength and social surroundings of the boy. Cent per cent of the boys have never been good and never will be. Boys will remain boys. In spite of early marriages, masturbation and other sexual vices are just as common in India as they are in any other country. Human nature is the same all over the world. In my opinion, early marriage kindles the fire of love in the heart of an immature boy too soon which draws him to maturity before time and finishes him before time. Experiments of Brown Séquard have shown that internal secretion of Testicles is very essential for the full development of a youth and that its undue discharge renders him mentally defective and dull-headed. In the course of my own observations I have repeatedly noticed that the young men who come to this country (*i.e.*, England) to pass their examinations, do so with ease and within the prescribed time, if they remain steady and abstain from sexual indulgence; but those who give the reins to their passions find it extremely difficult to pass their examinations even in double the time, owing to impaired memory and the like.

In Europe and other civilized countries, where education is compulsory, there are any number of public schools and colleges, and, although some of the boys do misbehave, yet early marriage is advocated nowhere. Teachers take a keen interest in the welfare of their pupils and keep an eye on them individually. Those who have no homes of their own, either live with their teachers or with respectable families approved by the educational authorities. Every care is taken to provide a healthy social surrounding; and, if in the face of this, some of the pupils choose to go wrong it is their own look out. The course prescribed is so exact that a pupil who does not work with sufficient diligence is soon spotted and generally recalled home as a bad bargain. Indian parents, on the other hand, unfortunately, are too indulgent to their children and do not exercise sufficient control in this respect. It may be taken for granted that, when a lad takes an undue time over his course, there must be something the matter with him which requires careful investigation.

Chastity of Girls.—The status of women in India is so different from that of women in other civilized countries that Indian people cannot realize how a girl who laughs and talks to strangers can keep her chastity and, therefore, they consider that girls should be married early to save them from disgrace. This, as far as experience goes, is entirely an erroneous idea. A girl guards nothing more jealously than her chastity, as it is her most valued possession. Once it is gone, every thing is up with her and she loses self-respect for life. On no other occasion is she more ferocious than when her chastity is in danger; and unless she is a bad girl, she never gives in willingly. It is not the woman but the man who makes advances to begin with, and then by sheer dint of force violates her. A girl, in my opinion, is well able to look after herself if she is sufficiently educated and protected from brute force. In Europe and America the laws of the country are so well framed that women-folk are well protected and no one dares to insult them, to say nothing of touching them, without their consent. An Indian girl is no inferior in this respect. Her present misfortune is lack of education and the high-handedness of man.

I have thus endeavoured to show that marriage of boys of a school-going age serves no useful purpose, is detrimental to their best interests, is injurious to their health and ruinous to their parents financially. Upon the offspring it has a disastrous effect, and taken all round it has not a single redeeming feature. If the health of the nation is to be improved and we desire to produce better and healthier offspring, capable of withstanding the struggles of modern life and the altered conditions under which we are placed, we must give up this evil custom of early marriage. Its results, individually and on the community at large, are so mischievous that we have lost all self-respect in the eyes of other nations and have reduced ourselves to the level of animals. No reform is possible without the restoration of the manhood of the nation, and all classes of people should see that their children are on no account married before they are mature and well able to support their wives.

Chapter IV.

URBANIZATION (TOWN LIFE.)

One of the evils to be fought against in the present age is overcrowding. As in other parts of the world, the modern tendency of the age in India is towards urbanization. Everywhere the country side is yielding to the town life where quiet rest, so essential to health, is denied and where housing, atmosphere aggregation, noise, stress of city life are all detrimental to long life. It is a well-worn maxim of political economy that population centres round places where more money is to be made and, although in theory people say that health is the supreme law and that growth in trade, commerce and industry is nothing unless health is maintained and men and women are well able to endure much hardship, yet a look at the actual state of affairs will convince anybody that in practice people in pursuit after wealth have so far sadly neglected their health ; and where there is overcrowding health cannot be maintained. Generally speaking, the tendency of urban communities, connected with trade or industry, is to congregate in cities. Labour follows capital, which builds its mills and factories in large towns ; the professions follow both, since more money is to be made there. Space is the privilege of the rich. The poor are huddled together in houses of very small dimensions, the roofs and doors of which are low, the insides dark, windows unusual, and in one of such so-called houses several families reside. Overcrowding is thus very considerable and apparent to the naked eye. It is also a well-known fact that the lower strata of society increase in number more rapidly than the higher. The result of this overcrowding is that, in spite of certain sanitary measures in large towns of India and decidedly better midwifery, general mortality is very high, and in some towns exceeds 70 per mille ; although the average death-rate for the whole of India is only 34·85 (census report of India, 1911). Infantile mortality is the most sensitive index of the social welfare of a community, as insanitary surroundings tell first and foremost upon delicate infants. This for the whole of India is 213·97 (census report of India, 1911); but in towns like Bombay it varies from 379 to 419, according to locality, and this is inspite of better midwifery, greater intelligence of the parents, better sanitation of the town, and undoubted efficiency of physicians and nurses! This means that nearly every second baby born in Bombay dies straight away within the first year of his existence, in spite of all the care which is bestowed upon him at present. And it clearly shows what an evil thing overcrowding is. It has been truly said that where industry flourishes, children decay. In agricultural parts of the country, although the people are poor, yet the mortality is very low, simply because there is hardly any overcrowding and people enjoy plenty of fresh air.

In Europe, where the authorities understand human nature better, they have laws for everything, and nothing is left to chance. In 1909 Housing Reform Act was passed in England, and since then 1,30,000 houses have been put right. Since then, also, the general death-rate has been reduced by 13 per cent and infant mortality over 30 per cent. Increase in mills and other steam factories generally spoils the health of towns and labourers cannot retain the same power of endurance, and their systems cannot resist disease in the same manner as did those of their predecessors. Proper light and plenty of fresh air are therefore most essential, and this can only be provided by the State; otherwise an employer will run his business as economically as possible; and if his neighbours die, it is no concern of his. Perpetuity and prosperity of a nation as well as its morals depend upon the physical standard of its people, and unless the municipalities of large towns realize their responsibility as to the health and life of the people it is not in the power of the people to help themselves. Urbanization is a necessary evil in the present age. What can be provided for millions cannot be provided for the few, and big universities, colleges, libraries and museums must remain in large towns. All that can be done to mitigate the evil, is to pay strict attention to the housing of the poor and to provide modern sanitary improvements, with as many parks and open spaces as possible to purify the air. Open spaces are justly called " lungs of the town".

Formerly, when the building craze had not taken hold of people to the same extent as it has to-day, every street in towns of India used to have open spaces where children could play about; but now the value of land has increased and buildings have been put up everywhere, so much so, that an open space in some towns is hardly seen, which is unfortunate.

In India the majority of the cities do not owe their inception to industry or trade. It is the town which attracts the trade, and not the trade the town. Large towns were built for political reasons or to satisfy a passing whim of certain potentates. Some towns, such as Benares and Hurdwar, owe their importance to religion and are centres of pilgrimage. Whatever the causes which made the towns, there is now no doubt that trade maintains them. They are all commercially important, either as industrial or manufacturing centres or centres for the collection of produce. Pilgrims give the same impetus to trade as summer visitors do to the watering places in Europe.

India is noted for its high birth-rate, but the conditions of town life and other insanitary environments are so powerfully at work that, in spite of the universality of marriage, the annual rate of increase is only 3 per mille, while in European countries it is more than three times that. In England and Wales it has been 12, in Germany 10·8, and in Belgium 9·6. The rate of increase shows the vitality of the nation, and India stands decidedly very low in this respect. This by itself shows that all is not well with India, and something has to be done to improve the vitality of her people.

Chapter V.

OTHER ENVIRONMENTS.

Having observed the influence of town life, inheritance and marriage on the health of parents and their offspring, we have now to direct our attention to other environments, as without healthy surroundings it is impossible to lead a healthy life; and without healthy life, the health of our children cannot be improved. Having secured good germ-cells for our progeny, we must learn how to avoid disease and preserve health.

The laws of health which conduce to the welfare of the body and of the mind (the action of one being reflected on the other) require—

1. A well constructed house.
2. Good air to breathe.
3. Good water to drink.
4. Wholesome food to eat.
5. Proper clothes to prevent the effects of heat and cold and insect bites.
6. Exercise of the muscles, brain, and other organs in proportion to one's strength.
7. Attention to personal hygiene.

A person living a hygienic life is thereby strengthened to resist diseases of all kinds.

Prevention of disease in the community is a matter for the State, as it is not possible for the poor people to help themselves, and private voluntary workers cannot do much. Work has to be done by organised State efforts. But the medical profession is a great help in the prevention, amelioration and cure of diseases, and is an important force in safeguarding the health and happiness of the world. It is the only profession in the world which by prevention of illness reduces its own means of emolument; and mankind in general have always appreciated its devotion to duty at all costs and with the greatest disregard for personal comfort and convenience, which characterizes medical men all over the world. As far as love of humanity and personal feeling for human woes and happiness are concerned, the physician of to-day and his predecessor of centuries ago differ very little in their attitude towards their patients. A family doctor has always been known as a family friend, and to him the parents always turn for guidance. It has ever been his struggle to weed out of the daily lives of his people whatever makes for diseases and to guide them into what strengthens, what helps resistance, and what makes for moral and physical well-being.

It is a noted fact that diseases originate where men, women and children live in poverty, degradation and vice of all kinds; and that an individual by attention to personal and domestic hygiene, with due attention to the necessaries of existence, can preserve his own health and prevent disease to some extent.

Before the days of Pasteur and Lister, the true causation of disease was not understood, and medical work was mostly empirical and feeble. The medical profession was till then engaged in the care and alleviation of sickness only. Pasteur in 1858 solved the problem of infection and Lister following him, pointed out that numerous diseases sprang from living vegetable and animal organisms. It was then argued that if these organisms could be eliminated, or their dire effects neutralized, corresponding diseases would be removed, or at least diminished in their severity. Since then, preventive medicine has come to the front; and at present one of the greatest objects of the medical profession is the prevention of illness. In progressive countries like England, Germany and America, every endeavour is made to stamp out preventable diseases and Medical Officers of Health throughout the country render skilled assistance in the detection of areas of disease and the removal of their cause and for securing the health of the people. They say that if a disease is preventable, why should it not be prevented, and that it is good economy to incur charges for preventing the evils where they are traceable to physical causes. Health is wealth, and when such a precious article is purchasable no price can be too high, and it should be purchased at all costs. Being self-governing countries the State also has turned its attention and devised suitable and effective legislation for the betterment and preservation of the health of the people. With this end in view, various Acts have been brought into operation within the last 20 or 25 years; some of which in England for instance, are:—

Notification of Births Act.
Diseases Prevention Act.
Notification of Infectious Diseases Act.
The Food and Drugs Act.
Water Supply Act.
Public Health Act.
The Sanitary Act.
The Medical Inspection of School Children Act.
The National Insurance Act of 1911.

The object of all these Acts has been to place the general public under medical care as much as possible, and one of the most promising features of recent legislation is the fact that the medical expert has now been incorporated into the educational system. By the skilled vigilance and wise guidance of the medical Inspectors of school children, many ailments are now detected in their initial stages and lives and capacities of great value preserved to the nation.

The National Insurance Act of 1911 alone has brought sixteen millions of employed people under medical control: and the Act includes valuable provisions for research work by skilled medical investigators which must in due time have a powerful influence in the prevention of many diseases, as well as in the methods of treatment.

While it will be a long time before such good legislation is introduced into India, let us see what we can do ourselves under the present circumstances to improve the health of the country as, after all, most of the causes of mortality are within our own control, and ignorance of such important matters is only an act of folly which is suicidal in its effect.

Chapter VI.

HOUSE.

To begin with, a house in healthy surroundings is the first essential for a healthy life. Everybody spends more than half his life at home and children spend nearly all. In the house we require protection from the weather, with full provision of fresh air and light, and also protection against burglary. Property is a necessary evil, as life without property cannot exist in a civilized community. During the unsettled days in India, life and property had both become so unsafe that when people built a house they had to look at it from the point of view of safety, and other factors had to be subordinated to this view. They had no idea of town-planning, they did not know that their own action could produce a disease, and they had no idea of cross ventilation or of the advantages of sunlight. The result was that houses were built in any fashion ; each house had its own design ; and they were huddled together back to back, side by side, without any window or light, with the one object of safety. The rooms in the house were really store-rooms and were not intended for sleeping purposes, for which either the court-yard or the top rooms were used. Frequent wars and outbreaks of epidemics kept down the population ; and, on account of poor trade, places were not so overcrowded then as they are now-a-days. Under the altered conditions, it is therefore very necessary that everybody should know what a healthy house is. That man is really most comfortable who enjoys the best health, and the most sanitary house must, therefore, be most comfortable. A big house, built generations ago, partly unoccupied and generally neglected, is almost a death-trap, and very often families living for more than three generations in such houses generally dwindle and sometimes disappear.

The essentials for a healthy house are :—

1. *Free ventilation.*—Fresh air is necessary to health. It is one of nature's gifts and costs nothing. Impure air causes headache and sickness, and leads to lowered vitality, with pallor and impaired health. People living in close, ill-ventilated rooms are

never vigorous and are always prone to illness and easily succumb to disease. A strong healthy person, working for some hours in a close room, finds that his mind easily wanders from his work, he soon gets tired, and has headaches. Consumption, anæmia, headache, want of energy are all due to the foul air which is given out by people living in stuffy, closed up rooms. All this impure air must be got rid of from the rooms; and the object of ventilation is to remove this vitiated air and admit fresh air in its place. Open windows will admit fresh air and allow the escape of impurities. The air inside the room should be kept as pure or very nearly so, as that outside; and a person coming in from the outside air, should not be able to perceive any odour or difference. Bad smell is nature's danger-signal.

2. *Light.*—Light helps growth and improves health. Children suffer in development from lack of sunlight. All rooms should, therefore, be well-lighted. Artificial light has not the beneficial action of the light of the sun, as sunlight is the most universal, economical and an effective destroyer of many disease-germs; and it is only on account of the sun's rays that the sanitary condition of India is not half so bad as it would otherwise have been. It aids in the disinfection of impurities in the dust; and assists the process of oxidation in the tissues and increases the vital activity.

A good light is essential for our eyes also, as dust and dirt are more readily seen and the eyes are not strained. The light should fall direct on our work and not be obstructed by any part of the body or by articles in the room. For reading and writing, &c., the light should fall on the paper from the left side and slightly in front, so that it may not be obstructed by the right hand and arm. If the light is directly in front of us, it is reflected into the eyes which is injurious.

All artificial lights are deficient in blue rays and so disguise colours. They are naturally much less brilliant than sunlight. Electric light is the nearest approach to sunlight and is the best of all the artificial lights, as it does not heat and dry the air to any extent and requires only a small quantity of oxygen for its use.

Kerosine lamps and paraffin candles are commonly used now-a-days in India. Candles give a soft and pleasant light; but their lighting power is very inferior and they vitiate the air much more than lamps do, and an extra allowance in ventilation has to be made on this account.

3. *Cleanliness.*—Cleanliness is essential in all parts of the house. Refuse of any kind vitiates the air, and it should be removed as soon as possible. Dust and dirt are carriers of disease; millions of disease germs may be grown from a speck of dust, if put into a suitable soil; and festering wounds, abscesses, lockjaw and consumption are produced from them. Where much dirt is, there are many flies; and no house can be considered healthy which is infested with flies.

Flies.—Flies which one moment are seen on the dijecta may the next be crawling over food or dropping in the milk. They are thus most dangerous enemies of mankind and are the means of spreading diseases, such as Enteric fever, Dysentery, and Cholera. It is somewhat astonishing that a Hindu who is so particular about his food otherwise, allows house-flies to crawl over his food without the slightest objection, although he sees them playing over all sorts of filth and rubbish under his nose.

The house-fly breeds in rubbish-heaps and decaying matter and is, therefore, a sign of unhealthy surroundings or of bad management; and as prevention is better than cure, nothing which attracts or breeds flies should be kept in, or near, the house. Every particle of food should be kept covered and doors and windows provided with chicks or wire-gauze covers. A fly-infested house is really one not fit to live in.

By contaminating milk, they produce Epidemic Diarrhœa and are, thus, a fertile source of Infantile mortality.

Bugs.--Bugs are another sign of a dirty house. No one can be healthy without rest, and as they disturb one's night rest they must be injurious. They are now known to convey the germs of Kala azar and Oriental sore from one person to another by their bites.

Mosquitoes and Sand-flies.—Over four million a year die of fevers in India; and of these at least a million deaths may be ascribed to Malaria, the germs of which are conveyed through mosquito bite. This shows what a deadly enemy the mosquito is of man, and if we put twenty sick to every death from malarial fever, we may form some idea of the sickness and mortality from this one cause alone. Fearful though it looks, most of it can, in my opinion, be avoided by the simple use of a mosquito curtain, and yet very few care to take the trouble of doing so. Penny wise and pound foolish! They will bear loss of wages from incapacity which fever causes, they will spend money on doctors and drugs; but preventive measures, perhaps because it is so simple, they will not adopt and will not make a mosquito-net a part of their ordinary bedding.

Many fevers, formerly known as malarial fevers, have now been identified as due to the bite of sand-flies, and the remedy is the same, a muslin curtain in this case. Both sand-flies and mosquitoes indicate an insanitary state of a place, and every endeavour should be made to get rid of them. Too many articles, damp and dark corners, old dirty rags and black clothes—all attract these insects and should be avoided.

Rats.—There is not a man in India who does not now understand that Plague is spread by rats, that they are the first to get it and die. A rat-infested house is therefore very dangerous and cannot be healthy. Rats are attracted by grain or cooked food left over night, and the least a person can do is not to put these temptations in their way. Dust, dirt, ashes, kitchen refuse and excreta must be removed from the house as soon as possible, and care should be taken that no grain or food is left uncovered. It is not within the means of many to have the floor of the house paved with flags or concrete, but darkness, dampness and dirt should always be avoided.

Old and useless articles should not be accumulated in a house, as they harbour all sorts of insects, and a house cannot be kept clean unless it is tidy.

Spitting.—Some people are very careless and spit wherever they sit or blow their nose. These are filthy habits and should be avoided. It is now known that consumption is due to small germs, called Tubercle Bacilli, and the sputum of these people is loaded with these germs. When this phlegm is spat on the floor, children crawling about often catch consumption, as the air round about the phlegm gets full of Tubercle Bacilli. Mother Earth is the table, chair, bed and everything to most of the Indians.

Evils of disorder.—Nobody can be healthy without rest; a restful mind is as important as a restful body; nothing conduces to peace and ease of mind more than tidy surroundings. A place for everything and everything in its place, and a time for everything and everything in its time, make the work of home cleanliness a pleasure. Order is the first law of nature, and confusion in things creates confusion in mind. Everybody in the house should, therefore, be trained to help to keep the home clean and tidy, and should have his own special duties to perform. It does not tend to the formation of the highest character to allow every moment of one's life to be spent in personal enjoyment and self-gratification.

4. *Freedom from damp.*—Houses get damp if they are badly built or if the roof is defective, and allows rain to percolate; and anybody can tell if a house is damp by a musty smell or if the walls are covered with brownish stains and moulds. A leak in the roof should always be repaired, and care should be taken that drains and gutters are in good working order, and that water does not ooze through the wall. Rheumatism, Bronchitis and Asthma are often due to damp, and a damp house is always a source of trouble.

A healthy house should, therefore, be well ventilated, well lighted, free from damp, well drained and kept scrupulously clean and in good order. The floor, if possible, should be cemented, and the roof always rain-proof. The site of a house should always be high, as low lying ground is generally damp and unfit for building purposes. Bad drains are always a source of danger.

Chapter VII.

AIR.

Fresh air is another necessity of life, without which we cannot live.

The story of the Black Hole of Calcutta is known to most of us where in a small room of 18 feet by 15 feet, 145 men were confined, and when the door was opened next morning 23 only staggered out alive.

On another occasion, a ship was caught in a severe storm and the Captain to save his passengers shut up 150 in a cabin. After the storm, when the door was opened, only 70 were alive.

Death on both these occasions was due to the poison which is in the human breath. A large dose of this kills a person straight away, but small doses create a sort of slow chronic poisoning which manifests itself in various forms of ill-health. This poison or carbonic acid gas, as it is called, exists in the ordinary air also, but in a very small quantity, namely, about four parts in 10,000 ; while the expired air contains 440 parts in the same quantity, and about six parts are considered to make the air foul. God through His mercy has, therefore, created plenty of air everywhere.

It is always around us, and we are free to take as much as we like. It exists even in water, and fishes in the sea and rivers would die were there no air dissolved in them.

The fresh air contains a beneficial gas, called oxygen, in large quantity which a man inhales. This inhaling of oxygen and exhaling of carbonic acid gas is called respiration and takes place in the lungs which fill the chest. In order to breathe properly, several things are necessary :—

(1.) A free and abundant supply of pure air.

(2.) There must be nothing to interfere with its passage to the lungs.

(3.) The muscles of the chest-wall must be in good condition, and the chest should expand about three inches in every act of breathing. To develop the chest muscles deep breathing exercises, so much recommended in Hindu books, singing and voice-production are very important.

(4.) Blood is the carrier of oxygen and carbonic acid gas and an interchange between the two gases takes place in the lungs. The heart must, therefore, propel the blood properly through the lungs.

The amount of space necessary for health.—In order to keep the air pure, a person requires 3,000 cubic feet of air every hour as the minimum amount, which means that if a person is fortunate enough to have a room 20 feet long 15 feet broad and 10 feet high all to himself, he will have to get the whole air changed once every hour. Then allowance has to be made for candles or lamps ; and it is said that two candles or one lamp consume as much oxygen and give out as much carbonic acid gas as one man, and one gas burner as much as six men. Some people keep domestic pets and allow them to remain in the same room. They too require their share of fresh air and add to the impurities in the air. Even the furniture in the room demands a share of the fresh air.

As it is not the lot of every person to have rooms large enough at his command, it is by far the best for the average man in India not to sleep in the rooms at all. Too much of fresh air can do no harm, as the climate on the whole is not very trying, and by sleeping in a stuffy room all the benefit derived from fresh air by day is quite counteracted, and one wakes up tired, bad tempered, and often with a headache. Anæmia and consumption are often due to impure air.

How quickly carbonic acid gas is produced in the human system, is shown by the fact that one has to take in fresh air ordinarily about twenty times a minute to purify the blood ; and in diseases, such as pneumonia, fevers, when a lot of waste material is thrown out, breathing always becomes rapid, going up to 70 and 80 times a minute.

Children require fresh air much more than grown up persons do, and it is a fatal habit in either to cover heads during sleep.

Nature has not only provided an unlimited quantity of this necessity of life, but takes care to purify it frequently by several means :—

(1.) Plants require for their growth the poison which human beings produce, and therefore they absorb carbonic acid gas under the influence of sun-light and give off oxygen required by man.

(2.) Winds bring in pure air from the sea and mountains, and drive away the bad air.

(3.) Rain carries down the dust particles, germs, &c., and thus purifies the air.

Chapter VIII.

WATER SUPPLY.

Uses.—Water is found widely diffused in nature and enters into the structure of plants and the tissue of our bodies. About three-fourths of the weight of our body is made up of water. In addition to other requirements, an adequate supply of drinking water is, therefore, absolutely necessary for the maintenance of life. We could not digest food if it was absolutely dry.

Besides for drinking purposes, we require water.—

(1.) For cooking purposes.
(2.) For personal ablution.
(3.) For cleansing clothes, drains, &c.
(4.) For watering roads.
(5.) For trade purposes.
(6.) For horses and cattle.
(7.) For extinguishing fires.

If the quantity of water is not sufficient, the health will suffer and illness may also result from impurities. A liberal and pure supply of water is, therefore, of primary sanitary importance.

Sources.—All water is derived from rain. Rain water is as pure as the atmosphere, through which it falls. If the air is pure, so is the rain ; but as its fall is limited to certain seasons only and cannot be relied upon, it is not customary to use rain as a source of water-supply.

The rain, after it reaches the ground, sinks into the earth, till it reaches an impermeable layer of clay ; and wells, sunk through the soil till a layer of water is reached, are the principal sources of water-supply in non-riverine places all over India. Most of these are shallow wells and liable to be infected from fæces and urine of animals, if not properly looked after.

Essentials of a good well.—An ideal well should satisfy the following conditions :—

1. It should be sunk in a good soil.

2. It should be lined with some impervious material, and the water should come only from the bottom.

3. The surrounding area at the top should be so sloped as to allow water to drain off readily.

4. It should be provided with either a pump or a bucket and chain or rope, and no other vessel should be allowed for drawing up water, as with different buckets the water is liable to pollution.

5. It should have a parapet about 3 feet high and a platform of cement about 5 feet all round the opening, with a proper slope.

6. The top of every well should have a suitable covering, with openings for ventilation.

7. All hollows and foul tanks near about, should be filled up, and adjoining trees cut down.

8. No washing of clothes or bathing should be allowed on a well used for drinking purposes.

9. It should be at a considerable distance from cess pools, privies and other collections of filth, grave-yards, &c.

Good water.—Good drinking water should be perfectly clear, free from taste, or smell, cool, well ærated, palatable and fairly soft. Hard water is agreeable to taste, but requires more soap in washing; and very hard water, if used continuously for drinking, is injurious to the system.

Its contamination.—No other article of human consumption is more liable to contamination than water. The character of water will naturally depend upon the geological structures, through which it has travelled. Presence of calcium will produce hard water, as in chalk wells. Too much salt produces brackish water. But water may get contaminated by soakage and washings; and a village tank or well is, therefore, always a great source of danger and requires careful supervision. Open conduits, like rivers and canals, are easily rendered impure, and their water should never be used unless it is boiled.

When water is obtained from wells, tanks or streams, and stored in the house for drinking purposes, however carefully it is done, it often deteriorates and is liable to accidental contamination from dust, dirt, handling, &c. When distribution is by Bhistis (water-carriers), the chance of contamination greatly increases. These people live under insanitary conditions, and the *mussak*, being a leather bag, is very difficult to clean. If once it gets infected, it acts as a means for spreading the contamination.

Diseases caused by impure water.—Putrid or decaying vegetable matter may give rise to bowel complaints, such as Diarrhœa and Dysentery. Water polluted with fœcal matter is very dangerous, and is a fruitful source of cholera and enteric fever. When a tank or well becomes infected in this manner, outbreaks of cholera are very common ; and villages on the banks of the rivers get cholera in the same way. Pilgrims in India know it to their cost how often cholera breaks out after a bathing festival.

Round worm, thread worm, and other entozoal diseases are contracted by drinking water containing one of these parasites.

Goitre and stone in the bladder are also due to the drinking of impure water.

Skin affections, such as Itch, Eczema, Ringworm may be attributed to the insufficiency of water ; and deficient supply of water internally in individuals causes distressing thirst, constipation, wasting, and lowers muscular strength and mental vigour.

How to purify drinking water.—Several methods, both natural and artificial, have been recommended for the purification of water, but boiling is the only practical method which can be employed by everybody. By this means, temporary hardness is also removed, and all organic impurities, including disease-germs are destroyed, rendering water perfectly harmless.

Filters.—I have no faith in domestic filters. They require a good deal of attention which the average man does not bestow, and a dirty filter adds more impurities and makes the so-called filtered water infinitely worse than the original one. The idea that filters do not require any attention or cleansing and that the filtered water is always above suspicion, is entirely erroneous.

Whenever there is any doubt about the purity of water, boiling is the only method which I can recommend for its purification.

Chapter IX.

FOOD.

Food is necessary for the growth and repair of the body; and must be distributed to its different organs and structures. It is needed not only to build up tissue, but also to generate energy or force for vital activity, and to keep up the bodily heat.

Milk, which is a perfect food for growing children, contains all the proximate principles of diet and, as such, furnishes an index as to what the necessary constituents of a diet should be.

We cannot live without waste of tissue and loss of heat and energy. Food is taken to meet this waste. For this reason food-stuffs should contain the same substances as are found in the body itself. These are Carbon, Hydrogen, Oxygen, Nitrogen and mineral salts.

Foods may be classified according to their uses:—

1. Flesh-formers. Chiefly the Proteins, water and salts.
2. Fuel-givers. Chiefly the Carbohydrates and fats.

Proteins.—Proteins are composed of Carbon, Hydrogen, Oxygen, Nitrogen and, occasionally, Phosphorus; and because they contain nitrogen, they are called nitrogenous part of the food. One-fifth of the body-weight consists of protein matter. A large amount of nitrogen is lost daily in the wear and tear of the human machine; and the chief duty of protein food is to repair this waste, and to build up the body tissues. Protein is essential to life; its absence leads to death. If the amount taken is not sufficient, weakness and anæmia results. Proteins are contained in eggs, meat, fish, poultry, milk, cheese, in certain cereals, as wheat and gram, and in certain vegetables, as peas, beans and lentils, in different proportions. Animal food, naturally contains more of this element; and peas, lentils, and beans, although rich in vegetable protein, are not very suitable for brain-workers, as large quantities of them must be eaten, and they are not easily digested unless active exercise is taken. Furthermore, recent observations and experiments on lower animals have led the medical authorities to believe that the various proteins are by no means equivalent to one another and that vegetable proteins, especially those of bread, beans and Indian corn, are inferior in body-building power to the proteins of meat, fish, egg, and milk.

Salts or mineral waters help to build up the bones and other tissues. Whatever food we take, it has some of these salts. Milk, bread and vegetables—all have them, and whatever deficiency there may be, is made up by taking common salt with daily food.

Carbohydrates.—Carbohydrates and fats are called fuel-givers, because they produce heat and energy. They contain Carbon, Hydrogen and Oxygen, but no nitrogen ; and hence they are also called non-nitrogenous foods.

Carbohydrates are generally obtained from the vegetable kingdom, and the chief of them are starches and sugars. If more of them is taken than is required by the system, they are not thrown away, but stored up in the liver and muscles in the form of glycogen, and under the skin, in the form of fat ready for future use.

The starches form a large proportion of bread, potatoes and other root-vegetables. Starch is of no use as a food, unless it is altered by cooking or by the action of certain substances, known as ferments, which in the human system are not active before the teeth begin to come out. Starchy food is, therefore, fatal for infants under 8 months.

Sugar is found in cane-sugar, in milk, fruit and some vegetables. It is useful as a food, owing to the fact that without change it can pass through the membranes of the digestive organs into the blood. It is, therefore, especially suited for children, whose activity demands food-substances which produce heat and energy without much trouble.

Cellulose is another form of carbohydrates. It is not of much value as a food-stuff, and is not digested. It is mostly found in vegetables, and its use is in giving bulk to the food which acts as a spur to the intestines.

Fats or hydrocarbons have the same composition as carbohydrates. They are useful to produce heat ; they also supply energy, and somewhat assist in building up the tissues of the body. They are obtainable both from animal and vegetable kingdoms of equally good quality. Their quantity taken by any person depends on the climate ; people living in cold climates can eat far more than those living in warm countries. Esquimaux for example, are said to devour lumps of bear's fat and drink large quantities of whale-oil; while we, in India, live mostly on grains and fruits.

Infants and children always require a large amount of fat, as their bodies, being small and having a larger surface, lose more heat in proportion to their weight than larger ones.

Necessity for a mixed diet.—As the result of observation and experiments, it has been ascertained that no single nutritive principle would support life for any length of time and that a mixed diet is essential for the maintenance of the body in a healthy condition.

The Hindus had come to the same conclusion long long ago. When a man in India applies for some work, he is modest and asks only for half a seer of atta. Strictly speaking, this will not keep him in sufficiently good health and, therefore, the old established Hindu custom is to give out a daily ration of 1½ lbs of Atta, four ounces of Dhall (lentils) and two ounces of ghee (clarified butter), with some salt and condiments. This contains all the nutritive constituents of a scientific diet to keep an ordinary workman in good health.

Modifying factors.—But no one always eats exactly the same amount of food, even under similar conditions and, therefore, much variation has to be allowed according to circumstances.

Work and rest.—More food is required when undergoing exertion than when at rest, and the increase is especially in the classes of albuminates (proteins) for brain-workers, and carbohydrates for muscular work.

Climate.—More fatty food is required in cold seasons and countries than in hot, to supply more material for combustion and a greater production of body heat.

Age and sex.—Building material, fuel and muscle-food are more needed by children than by adults, because they have to grow in addition to keeping their tissues in repair, and they throw off proportionately more body heat. Proteins and fats should form a large proportion of their diet, and their importance cannot be over-estimated.

A baby should be fed, in quantity, according to its weight and not according to its age. The heavier the baby, the more food does it require.

Old people need less food than those in middle life. Their power of assimilation is on the wane and their bodily activities on a decline. Proteins in their case are not very essential. They require carbohydrates and fats to keep them warm.

Women require relatively less food than men, on account of the lighter nature of their work.

Height and build.--The amount of food required varies also with the body-weight and the extent of the body-surface. A heavy man requires more food than a light man ; and a tall thin person, who has a larger surface in proportion to the bulk to lose the heat from, often eats a great deal.

Idiosyncracies.—Idiosyncracies of individuals must be taken into account also. Some people can digest a great deal more than others, without any discomfort or gaining in weight.

Correct diet.—The various constituents required to make up a sufficient diet are rarely found in any *one* article of food, and when two or more are contained in the same substance they are not usually combined in the proportion required in the body. An adult, for instance, needs proteins 4½ ozs, fats 2¼ ozs and carbohydrates 1 lb, as his daily food, in order to support life. If he were to get proteins from bread only, he would require 3 lbs of bread which will give him 4½ ozs of proteins sure enough, but he will get too much of carbohydrates and very little of fat. Our ordinary meal must, therefore, consist of several kinds of food which experience has taught every nation how and in what proportion to mix. Thus we take ghee with our bread and Dhal, and vegetables are always cooked in ghee or oil to supply fat which is wanting in them. Proteins no doubt are the most essential, as no vital action could be carried on without them ; but health, it should be understood clearly, cannot be manitained on proteins and water alone ; and their excess causes rapid oxidation of fat.

Animal and vegetable food.—All the necessary constituents of food can be obtained from the vegetable kingdom, and in India some castes are purely vegetarian. But the prevailing custom of the majority of peoples all over the world is to derive their food both from animal and vegetable kingdoms ; and scientific experiments would appear to show that an admixture of animal with vegetable food results in more rapid tissue-formation and tends to hardiness, greater energy, and greater power of endurance.

Vegetarianism in India.—In India no question, now-a-days, is more keenly discussed than the subject of dietary, with special reference to the Indians. A country inhabited by so many varieties of people of different nationalities, castes, and creeds naturally shows a divergence in the food they eat. India, more than any other place on the globe, is endowed with the best of nature's gifts, and yields vegetable products not to be found in any other part of the world. It is, therefore, no wonder that the Hindus from time immemorial got into the habit of living purely on vegetarian diet, and meat is not taken habitually by the majority of them. Pure vegetarians are to be met with in many parts of India enjoying the best of health; but it should be noted that milk, though derived from the animal kingdom, is not excluded from their dietary. A young man requires daily about 350 grains of nitrogen, 5,000 grains of carbon and 500 grains of salts for the upkeep of his body; and it is only a matter of convenience and custom how and where he gets them from. If we look to the history of the human race, we find that man has been guided in the selection of his food by the circumstances and conditions with which he has been surrounded. The physical organization seems capable of the remarkable power of adapting itself to such food as may be procurable. In arctic regions, where no vegetables can be had, man lives exclusively on meat and fat; similarly in India, where fruits and nutritive vegetables abound and are easily procured, these are consumed very largely. The source is different, but the principle remains the same.

Animal and vegetable proteins.—Carbohydrates, such as starch and sugar, are almost entirely derived from the vegetable kingdom; and their value as food is beyond dispute. As regards fats, it has been proved by experience, as well as experiments, that vegetable fats are as valuable for nourishment as the fats of meat or milk. The dispute is only about proteins. Some authorities, like Chittenden in England and Graham Lusk in America, hold that vegetable protein is inferior in nutritive value to proteins of animal nature; but some German observers declare that the nitrogen equilibrium suffers no impairment if the proteins of meat and milk be replaced by those of Peas and Beans.

Protein absorption of a vegetarian.—The real question, however, is the question of protein absorption of a vegetarian, and not whether vegetable proteins are equal in nutritive value to the animal proteins. Nitrogen absorption depends more upon the manner in which the protein diet is made up than upon the absorptive power of the Intestinal canal. When the total bulk of a diet is so great that digestion and absorption are interfered with, only a portion of proteins can actually be utilised by the system, and the rest is passed away by the stools as unused. But if the amount of carbohydrates is reduced by adding fish or meat or milk, there is a sudden rise in protein absorption and the actual protein metabolism is largely augmented.

Proteins essential for race development.—Authorities on food are unanimous in their opinion that the sociological conditions, vigour and physical development of a race are in close relationship with the amount of assimilable protein in the daily food of its individuals. The progress of a nation is hampered if the citizens are ill fed; for upon food depends not only life itself, but the power to work and to resist disease. The result of protein starvation, especially in the early growing period of life, when, in addition to the elements required for repair and formation of energy, an extra quantity is required for growth, is disastrous; for this may result in imperfect growth and development, the consequences of which may be very lasting. With excessive carbohydrate food, there is excessive fermentation in the intestines which causes much loss of protein element, with an accompanying loss of vigour and strength and a comparatively low capacity for prolonged or sustained muscular work.

The amount of carbohydrates in the diet of educated Indians is, therefore, a serious question. Its excess not only leads to the waste of protein element which is so essential for the healthy growth of a race, but is one of the important causes of Dyspepsia—a disease so peculiar to and so frequent among the educated classes. A reduction of carbohydrates, within physiological limits, is undoubtedly very much needed; but it does not mean that those who are averse to meat and fish should take either of them. Instances are not wanting where people show marked physical development and manliness of spirit by living exclusively on Atta, Dhal, Cream, Dahi (curd) and milk, and they enjoy the best of health and longevity on such a diet, provided they take sufficient exercise. While health and muscular strength can certainly be maintained upon a purely vegetable diet, it is held by some that those who live on such a diet are lacking in what is called energy; and Haughton explains the difference between energy and strength in the following lines:—

"The hunted deer will outrun the leopard in a fair and open chase, because the work supplied to its muscles by the vegetable food is capable of being given out continuously for a long period of time; but in a sudden rush at a near distance, the leopard will infallibly overtake the deer, because the flesh food stores up in the blood a reserve of force capable of being given out instantaneously in the form of exceedingly rapid muscular action."

Physiological effects.—The same may be noticed daily when a vegetarian is compared with a meat-eater in his everyday life. While a meat-eater feels revived after his meal and goes straight to his work, a vegetarian feels heavy and drowsy, passes a lot of wind and does not show the same amount of energy.

The increased amount of water—which is an important feature of vegetable food—renders the tissues more or less flabby and dilutes the blood. In the case of a labourer, however, it doesn't do much harm, as the free action of the skin carries off the excess of water. In brain-workers, who are more or less engaged in sedentary pursuits, its injurious effects are obvious.

Summary.—From what has been said regarding vegetable food, the following is, I hope, clear:—

1. Vegetable food is rich in carbohydrates and, with some exceptions, deficient in fat and nitrogenous substances.

2. Due to richness in starch and cellulose and to the large amount of water which they contain, vegetable foods are bulky and require a lot of exercise for digestion.

3. For this reason and on account of their tendency to undergo fermentation in the intestines, they are less easily digested and less completely absorbed than animal food. They are apt to produce a feeling of heaviness, and give rise to much flatus. Galen said, "They are harder to digest and give rise to bad dreams."

4. A vegetarian must either live upon a diet poor in protein or consume a large bulk of it.

5. A purely vegetable diet, milk excluded, is apt to be deficient in protein element.

6. Best results are obtained by supplementing part of the vegetable food by animal substances, rich in protein, such as meat, fish or milk.

7. For brain-workers, something more than milk is desirable to supplement the protein element derived from vegetable food, and eggs, fish or meat may be added with advantage. Labourers do very well on vegetarian diet alone.

Cooking.—Cooking is both an art and a science; and good cooking implies knowledge and skill. Neither bad air nor bad food is compatible with either a sound mind or body. The irritability and bad temper of a hungry man are allayed by wholesome and sufficient food. Cooking increases the palatability of food, and enables it to be more readily masticated and easily digested. By the process of cooking, a number of vegetable products that would be too hard for digestion, are rendered softer, and protein foods are made more palatable and digestible. Certain pathogenic microbes with which the food may be infected are also killed by this process and food is rendered sterile.

The various modes of preparing our food have the great object of stimulating the appetite. With good exercise and open air life, with freedom from care and anxiety, food is relished without a finished cookery or the use of condiments, and the appetite requires no tempting, either by constant variety in the food, or in its mode of preparation. But amidst the turmoils and anxieties of town life, attention must be paid to the refinements of the table, and appetite has to be stimulated by culinary expedients. A mixed diet is easily digested. Food accessories, like condiments, help in the digestion ; and in vegetarian diet, where flatulence is so great, they are very essential to rectify this condition. Palatability of food is not simply a gratification of the sense of taste and pleasure. An appetizing food or even the idea of it, is sufficient to make the mouth water, and at the same time produces in the stomach the "appetite juice."

Time for taking food.—A certain degree of regularity in the time of taking food is important. Irregularity of meals will in time ruin the best digestion. In some cases, the desire for food occurs with all the regularity of the clock, and if food be not taken, then the appetite disappears. A morning meal is always necessary, as the body on an empty stomach becomes more susceptible to morbid influences, such as those of cold and infection. There should also be a sufficient interval between the last meal and bed time. The longer it is, the better, but two hours is about the lowest.

Variety.—Change and variety are necessary in our daily habits to keep our disgestion in good order.

Society.—Agreeable society at meal times improves digestion.

Diseases connected with food.—The two best friends which God has given to every individual are good digestion and good sleep ; and as long as these two are on his side, he has not much to fear in this world. But the tendency of the present age, among the educated classes especially, is to ruin digestion by eating too much and by not taking sufficient exercise. This habit of eating too much and not to "leave off with an appetite" always results in a disordered digestion, faulty assimilation, derangement of the Liver and Bowels with defective elimination and excess of effete matters in the blood. Such people indeed dig their graves with their own teeth.

Fermentative and putrefactive processes are set up with the generation of offensive gases, leading to dyspeptic troubles. Some of the products of putrefaction are absorbed into the system and give rise to the symptoms of auto-intoxication, *i.e.*, headache, a bitter taste in the mouth, fœtid breath, and torpor. Excess of carbohydrates or fats sets up acid dyspepsia, with accumulation of much wind and obesity, and glycosuria results. Excess of proteins causes an undue tax on the excretory organs, and may develop tendency to gout, stone in the kidney and other allied disorders.

Deficiency of food.—Deficiency in the proximate principles of diet involves loss of weight, debility, poverty of blood and prostration. Absence of fat leads to a state of malnutrition. The lack of nitrogenous elements predisposes persons to phthisis, pneumonia, etc.

Deficiency of fresh vegetables and fruits in the dietary leads to scurvy.

Food is rendered unfit for use by the growth in it of yeasts, moulds, or germs, all of which flourish in a warm and damp climate and are easily known by their unpleasant smell or bad flavour.

Flies and insects often infect food. They swarm over the refuse and may immediately after settle on food, carrying germs to milk, etc. Infantile diarrhœa, cholera and enteric fever are spread in this way.

Indigestion is the great enemy of mankind and, besides excess in food, is due to other causes also, the most common of which are :—

1. Septic gums or carious teeth.
2. Insufficient cooking of food.
3 Hurried meals, or meals at irregular intervals.
4. Bad or decomposing foods.
5. Unsuitable articles of diet.

It may be noted here that diseases connected with food are unknown in wild life. They appear to be the sole monopoly of man and his domestic animals!

Chapter X.

BEVERAGES.

Beverages are substances which, by enabling food to be taken with pleasure and relish, act as food accessories. They appear to stimulate digestion by acting on the digestive organs, either directly, or through the central nervous system.

Water.—Water is the universal beverage and most commonly used in India. The utility of water in the human system is evident when we see that about three-fourths of the weight of the body is made up of water, and life cannot be maintained without it. Water is a dangerous vehicle of infection; and contaminated water is more dangerous than infected milk, on account of its rapidity in passing through the stomach and intestines.

The practice of drinking water during meals is not commended by some, as it is said to interfere with digestion by diluting the gastric juice and causing bolting down of the bolus of food without proper mastication; and they say it should be taken an hour before or after meals. In my opinion water, if taken in moderation during meals, has no evil effect and hastens digestion by softening food and reducing it to a soft pulp. One is apt to forget drinking water if not taken at the meal hour which leads to constipation.

Ærated waters.—Artificial ærated water is prepared by charging water with carbonic acid gas at a high pressure. It has a sharp pleasant taste. The gas, by stimulating the movements of the stomach, helps the mechanical process of digestion, and by lowering the sensibility of the nerves of the stomach acts as a gastric sedative, and is useful in allaying any sickening feeling. Ærated water is not always sterile, and is often prepared from water not always above suspicion. Too much of this kind of water causes dilatation of the stomach.

Mineral waters.—Mineral waters are generally derived from natural springs and, besides containing some natural ingredients, are impregnated with carbonic acid gas. They promote the chemical process of digestion, and most of them are mild laxatives.

Other beverages in common use, may be divided into—

I. Non-fermented drinks, and
II. Fermented drinks.

To the former class belong tea, coffee, cocoa, various kinds of sherbets and cocoanut water.

The latter include all Alcoholic drinks.

I. Non-fermented drinks.

Tea.—A hot infusion of tea leaves is used as a beverage now-a-days in almost all parts of the world, and there is no doubt that taken in moderation tea gives a feeling of comfort and increases bodily and mental vigour. About its restorative and stimulating virtues, Parkes wrote as follows:—

"Tea seems to have a decidedly stimulative and restorative action on the nervous system which is perhaps aided by the warmth of the infusion. The action of the skin is increased and that of the bowels lessened. The kidney excretion is little affected, perhaps urea is a little lessened, but this is uncertain. Hot infusion is potent against heat and cold, is most useful in great fatigue, especially in hot climates, and has a great purifying effect on water. Tea is so light, is so easily carried, and the infusion is so readily made, that it should form the drink *par excellence*, and it saves people from water-borne diseases."

Sir William Roberts goes a step further, and says:—

"Within the last two centuries an important change has taken place in the dietetic customs of the European nations through the introduction of tea, coffee, and cocoa. The use of these beverages has become so large and so general that we may fairly assume that a sufficient time has elapsed to enable us to form a judgment of their effects on national characteristics. That the effects have not been injurious to the nations of Europe, is demonstrated by the continued progress of these nations, and their increasing ascendancy among the nations of the world It is scarcely possible that so important and so peculiar an addition to our dietary has not had some effect on the type of nutrition and more particularly on the nutrition of the Brain and nervous system. Reflecting on this matter I have not been able to avoid the impression that it is possible to trace a change in the mental type of the western races in the last three generations. There is, I think, to be observed an increased precision in their mental operations, resulting in an improved criticism and in the rise and progress of the exact sciences. It is certainly remarkable that within the last century, coincident with the spread of tea, coffee and cocoa, and perhaps I should add tobacco and in combination with the ancient usage of Alcohol, there has been within this brief epoch more progress made in criticism and the exact sciences and the dependent industrial arts, than in all the preceding ages of this world ; whereas during the same epoch, art and literature which depend more on the imagination have practically stood still. The coincidence is at least suggestive."

This is all very good ; but Sir Roberts forgets that the Tibetans, Mongolians and other races, who have been tea drinkers from time immemorial, have not contributed anything to the fund of human knowledge or made any progress in science. It might be that the habit of tea-drinking has saved European nations from excessive use of alcohol and thus increased their power of precision in their mental work during the last three generations. It is a well-known fact that, before the introduction of tea in Europe, people used to have beer and other fermented liquors with their breakfast, and continued doing so nearly the whole day. Nobody can deny the advance made by Europeans and their ascendancy among the nations of the world, but I personally attribute it more to their present temperate habits and other social and political causes than to the use of tea and coffee.

Another celebrated authority, Nansen, the distinguished explorer, would not have anything to do with stimulants of any kind. He says :—

" My experience leads me to take a decided stand against the use of stimulants and narcotics of all kinds, from tea and coffee to tobacco and alcoholic drinks. It must be a sound principle that one should live in as natural and simple a way as possible, and especially when the life is a life of severe exertion in an extremely cold climate. The idea that one gains by stimulating body and mind by artificial means, betrays not only ignorance of the simplest physiological laws, but also a want of experience or perhaps a want of capacity to learn from experience by observation."

While a light cup of tea freshly made " cheers but never inebriates," strong tea, if allowed to stand over a long time, retards peptic digestion, owing to the presence of tannin and volatile oils. Strong infusions irritate the mucous membrane especially when taken on an empty stomach, and may excite a condition of gastric catarrh. Most of the gastric ulcer cases in the working classes of England are due to the excessive use of tea. The habit of tea drinking at breakfast and other times, in the factories and foundries, is a fruitful source of physical deterioration, anæmia and neurosis; and one medical authority once said that he didn't know which one to blame more—a bottle of whisky or a pot of tea!

Coffee.—Coffee is similar to tea in its action. Coffee causes stimulation of the nervous system and, after its use, there is a diminution of the sense of fatigue. Excess of coffee-drinking causes nervous disturbances, palpitation, and liability to attacks of neuralgia, hysteria and epilepsy.

The Hon. R. Russell in his work on "Strength and Diet" writes as follows:—

"The United States consume per head 1·33 lbs. of tea and 7 8 lbs. of coffee. By drinking two or three cups of black coffee (strong) at every meal, muscular tremors are sometimes developed with nervousness, anxiety, dread of impending illness, with palpitation, vertigo, heartburn, dyspepsia, constipation, and insomnia."

Truly, a heavy coffee-drinker digs his grave by his own teeth!

Cocoa.—Cocoa and chocolate combine the exhilarating effects of tea and coffee, with some of the sustaining properties of milk. They contain much fat, and are therefore heat producers. Half a pint of milk and two ounces of chocolate yield about 400 heat-units out of a total of 2,400 required daily for an average man.

Sherbets.—Sherbets are non-ærated, sweetened drinks, widely used in India during the hot weather as refreshing and cooling drinks. In moderation, they are wholesome but their use in excess is a fruitful source of Diabetes.

Cocoanut water.—Cocoanut water is widely used in certain parts of India, especially in Bengal and Burma, where cocoanut trees grow in great abundance. The water is refreshing and when taken after meals, is useful in Acid Dyspepsia.

Where good water for drinking purposes is not available, it is always safe to use cocoanut water, if it can be got.

Infusion of ginger.—There is something in human nature which craves for stimulating beverages, and human ingenuity always tries to find out something new. Infusion of ginger has been in use in India as a substitute for tea and coffee now for some years, and those who have used it declare it good. Personally, I agree with Nansen that stimulating drinks are not required by the system. Good and wholesome water is the best drink.

II. Fermented Drinks.

Âlcohol.—Almost all fermented drinks contain a chemical substance of a powerful nature, commonly known as alcohol. As the use of these drinks is getting pretty common in India and the liquor traffic, as shown by the Government returns, is daily increasing, the subject requires our careful consideration.

While the use of intoxicant drinks is strictly prohibited by the Hindu and Mahomedan religions, there is no such prohibition among the Christians and, therefore, fermented drinks have always been in common use all over Christian countries, and a water drinker is considered an object of pity. The best shops in European countries are Liquor shops, and being a source of revenue to the Government and of profit to the brewers, every endeavour is made to push on the sale of alcoholic drinks everywhere. Some people say with pride that they have forgotten the taste of water, and I remember having read a placard in one of the hotels in Rangoon warning its guests—"Those who drink water, do so at their own risk," as if the drinking water in Rangoon used by so many thousands was unfit for the guests of that Hotel. In other places they charge about six pence extra from those who do not consume any liquor and drink water with their meals. In good society, drinks are offered openly and good justice is done to them; and a dinner party would not be considered worth going to if drinks were withheld. Health of friends is drunk in wines, and, as a common courtesy, drinks are offered to visitors in the same manner as Indians offer betel. Gin is frequently given to young infants for 'wind,' colic or even for restlessness! Sometimes it is actually given to put the child to sleep, while its mother goes out shopping. The Scotch have a saying that any disease which cannot be cured by whisky is not worth attending to. Wet nurses and suckling mothers are given stout and porter, under the popular impression that such drinks will supply great bodily nourishment and make good milk. There are unlimited medicated wines in the market sold under the names of tonic wines for invalids.

With such free use of alcoholic drinks, it is no wonder if there are, at present, more lunatic asylums in Christian countries than leper-houses ever existed in the world's history, and if physical and moral degradation, poverty, misery and crime follow their excessive use.

Blood is life.—Most of us have heard the expression that Blood is life, but it is only within the last twenty years or so that we are beginning to understand its full force. The blood is the life, not only in the sense that if it is poured away we die, but also in the sense that upon its power to resist disease the health of our bodies and their recovery from illness mainly depend. Life and death are, therefore, in the power of the blood, and in order to understand how alcohol damages our blood, it is necessary to know what blood is.

Composition of blood.—Blood is composed of an almost colourless fluid, called the plasma and extremely minute jelly-like particles, called the corpuscles. These are so small that they can only be seen with a powerful microscope, and are red and white in colour. There are many more red cells than white, about 500 red to one white. The chief function of the red is to carry oxygen through the body, by which means the blood is purified, and this has been known to the physiologists now for a good many years. But the function of the white cells was not quite clear, until Professor Metchnikoff of the Pasteur Institute, Paris, twenty-five years ago, pointed out that they were concerned in destroying the microbes, to which so many of our diseases are due. Sir Victor Horsley, commenting on this discovery, compared the white cells to the standing army or policemen of the body whose duty it was to attack and destroy any foreign matter, such as dust or disease germs. If microbes were present in one particular part of the body, these white cells left the blood vessels in the neighbourhood in large numbers and went towards the infected area, attacked the germs, and tried to destroy them. They have been actually seen devouring the germs. This is most wonderful, and no other part of the human system can be more useful than these tiny cells in fighting out a disease.

Antitoxins.—The white corpuscles are assisted in their work by other chemical substances found in healthy blood. These things increase in the blood during any infection and act as antidotes to the poisons given out by the germs. These are called antitoxins.

Alcohol paralyses white cells—the Policemen of the body.—Professor Metchnikoff and other scientific men have clearly shown that alcohol has a most injurious effect on the corpuscles and on the chemical substances in the blood which play so large a part in preserving our bodies from disease. They have proved that alcohol, even in tiny doses, paralyses more or less the white cells and renders them less alert, so that they remain passive and motionless in the presence of dangerous microbes, which it was their duty to destroy. The seriousness of this adverse influence upon the vigour and energy of the white cells cannot, thus, be over-estimated; and herein lies the explanation of so many premature deaths and prolonged illnesses in alcoholics.

Red cells, the oxygen-carriers, also damaged.--Recent physiological researches have shown that alcohol has a very damaging effect on the red corpuscles also. As it is on these that we chiefly depend for the purification of the blood, it is easy to understand that constant spirit drinking must have a disastrous influence upon the health and richness of the blood.

Europeans in India have less recuperative power.—It is a well known fact in India that Europeans and other alcoholic drinkers there have not the same recuperative power as most of the natives, in spite of their low vitality. Wounds in Europeans, as a rule, heal very slowly ; and diseases, such as pneumomia and malarial fevers, in their case generally prove fatal. This is simply due to the better state of the Indian's blood, as he does not consume so much alcohol and has, therefore, more resisting power

Use of alcohol in medical profession.—At one time alcohol was very much used by the medical profession in Europe ; and it was thought that it was a correct thing to send a patient to Heaven drunk. There was an impression that alcohol was a tonic, that it increased the secretion and stimulated the muscular activity of the stomach, and, therefore, favoured digestion, and that intoxicating liquors tended to prevent cholera, plague and malaria. Under the light of modern discoveries, all these ideas have been given up, and medical authorities are now unanimous in declaring that alcohol is a dangerous poison and that it can never enrich the blood. Its only advantage is that it is freely absorbed and therefore requires no digestion ; and it is on this account that it is used medicinally in certain cases of coma. Its inmoderate use lowers the resisting power, retards digestion and leads to degeneration of the alimentary tract and other organs of the body. That it is a most potent and deadly agent of physical deterioration is evident from what Von Moltke, the Imperial Chancellor of Germany, said about beer. " Beer," he said, " is a far more dangerous enemy to Germany than all the armies of France."

Alcohol and Nervous system.—Alcohol affects all the living cells of the body ; but the more delicate a structure, the sooner is it influenced by its poison, and the more lasting are the effects. Nervous and vascular structures are, thus, more readily injured by over-indulgence in alcohol ; and that is why so many lunatic asylums are seen now-a-days. Alienist records and the study of inebriety, show how closely alcohol and mental diseases are connected.

Alcohol and germ-cells.—Alcohol seems to have a peculiar effect on the germ-cells. We all know that the man who drinks frequently wrecks the home and entails poverty and misery upon his children. This is bad enough, but it is awful to leave these unfortunate young ones with damaged brains, will-power weakened, and bodies whose ability to resist disease is seriously impaired. Poverty might be overcome, but no one can rectify a damaged constitution from its very birth.

In 1901, the New York Academy of Medicine undertook a study as to the causes of mental deficiency in children, and for this purpose 55,000 school children were examined. Of these 58 per cent were below the required standard of intelligence; and, on examining the family histories of 3,711 such children, it was noticed that of those free from hereditary alcoholic taint 4 per cent only were deficient, while 77 per cent of the backward children belonged to alcoholic ancestry. There can, therefore, be no doubt that alcoholic ancestry is one of the most common causes of nervous degeneration in children ; and this may show itself in dulness (inability to work well at school), in hysterical tendencies, in feeble-mindedness, or in actual insanity.

These unfortunate creatures eventually become morally defective and supply the ranks of the criminals and fill the reformatories, work-houses and jails. A father who murders his child is punished with a death-sentence, but nothing is done to a man who, through his evil habits, produces a moral degenerate, who spends half his life in jail, as the result of the brain-tissue degeneration, which is his legacy from him. These are, indeed, the cases in which "the fathers have eaten sour grapes, and the children's teeth are set on edge."

Alcoholic ancestry, apart from mental and moral defects, is liable to entail upon children serious physical defects also. The power to resist disease is much less in such children. Damage done to the blood of the parent reacts upon the child and injures its resisting power also. It is born with much less ability to resist the invasion of the germs of Tuberculosis and becomes a much readier prey to any illness, with the infection of which it comes in contact.

Alcoholic ancestry and motherhood.—Another evil, pointed out by Professor Bunge, of Bâle, is, that in the great majority of cases, where women cannot nurse their babies for nine months, there has been a history of alcoholic ancestry. On the other hand, in the families, where the mothers and daughters can suckle their infants, drunkenness is rare. The conclusion he has, therefore, come to is that, if the father is alcoholic, the daughter loses her power of suckling. This is a striking example of how "the sins of the fathers" may be visited on the children. That the drunkenness of the grandfather should deprive the poor little grandchild of the food, which can never be so well replaced by any other, seems a terrible revenge for nature to take.

This explains why so few European mothers are able to suckle their babies, and why so many infant foods are now-a-days in the market. Things are not so bad in India at present; but judging from the steady progress which liquor traffic is making in that country, time might not be very far when Indian mothers, like their European sisters, will get incapacitated to nurse their babies, and thus add another cause to the already many causes of Infantile mortality, which is terribly high in India.

The evil effects of alcoholic ancestry do not stop here, but follow the child before its birth and after. Before birth, the poison may starve the infant's brain as well as the body, and after birth, besides stunting the body's growth and proper development, it may directly or indirectly lead to various kinds of ill-health.

During all the months before the infant's birth, its only possible source of nourishment comes from its mother's blood, and its quality must have a serious influence upon the child. The poor feeding in the womb injures the body, while its foundations are being laid, and this is the time at which the worst injury of all can be done to it. If the foundations of a house are badly laid, patch it up as you will, that house will never be a good house. The same is the case with the body. It will never in after-life be so sound as one that has had its foundations well and truly laid. On the strength and richness of the mother's blood, the child's future health mainly depends; and if, before birth, it is nourished with blood impoverished with alcohol, its body must be very ill-prepared to fight disease. The "policemen of the body" are in its case a poor paralysed lot, unable to defend the citadel to which they belong from the enemies that attack it. The standing army of such a body is worthless and quite unable to wage war with any foes in the shape of illness that come in its way.

More than half of such babies die during the first three months of life. They are so enfeebled that their hold upon life is weak; their blood has no resisting power and so they quickly succumb.

Malt liquor to suckling Mothers.—It is a general practice in European countries to allow malt liquor to wet-nurses and suckling mothers, under the impression that such drinks will supply great bodily nourishment and make good milk. Such, however, is not the case and the milk of a woman who takes alcohol in any form cannot be wholesome for an infant. Alcohol, we know, has a great disturbing influence upon the nervous system of a grown-up person; how much greater it must be on that of a tender little infant? Restlessness, irritability and convulsions in breast-fed babies are simply due to this habit.

The idea might have been taken from dairymen giving their cows "Brewer's grains," in order to get more milk, but this milk is of an inferior and much less nutritious quality. The quality of the milk is injured, and this is exactly what is found with human milk when a mother or nurse takes stout or beer. It is the good milk, and not any kind of milk, which a baby requires, and Dr. George Cheyne has well said that milk and sweet sound blood "differ in nothing but in colour." Milk is blood. The mother's milk is a living fluid secreted from her blood, and if through the use of alcohol or from other causes her blood is poisoned, the poison will surely find its way into her milk, and its ill effects upon the corpuscles will be manifest in the child's blood as well as in hers.

Food value of malt liquor.—Baron Liebig, one of the greatest chemists of modern times, said: "Nine quarts of the best ale contain as much nourishment as would lie on the point of a table-knife. Ale, beer, stout and porter are all brewed from malt, and the nourishing qualities of one cannot be extolled much above the other. To expect nourishment from these drinks is therefore something like expecting blood out of a stone, and if they are useful to anybody at all, they must be to the brewers or to the revenue of the Government."

The late Dr. Norman Kerr pointed out that the everyday prescription of nourishing stout to nursing mothers was not scientific medicine, but the grossest quackery and produced most lamentable results to both mother and child. All the alcohol in the world will never add a drop to the store of real milk. It can only poison the previous scanty supply.

If people were only to reason from analogy and consider how animals suckle their young without the aid of intoxicants, they would at once see that alcohol can in no way add to the value of a mother's milk.

Some people, when they are taking intoxicating drinks themselves, just for fun give little sips to the children also. This is a deadly practice. The liver in infancy and childhood is peculiarly susceptible to injury from the action of alcohol; and even small quantities frequently given have been known to damage the liver of a child just as much as a long course of drinking does to the liver of an adult. No one with a damaged liver can lead a really healthy life; the child will probably carry to its grave the burden of the injury done to its body by the spirits given to him. His 'policemen' of the body have been paralysed, and he is therefore deprived of the disease-resisting elements in his blood.

Chapter XI.

CLOTHING.

Purpose of Clothing.—The great use of clothing, apart from the question of decency, is to help the skin to maintain the heat of the body and to get rid of perspiration. Heat is produced from the food we eat, and clothing only prevents its waste. It has no power to produce heat itself. Clothing also protects the skin from bites of insects, such as mosquitoes, etc., and from external injuries

In a country like India, where cotton grows in great abundance and winter is not severe, cotton goods are mostly in use. Woollen goods are also pretty common, but their use is mostly confined to winter months.

Requisites of a good material for garments are that it should be light and porous. As clothing affects the rate at which the heat is taken away, this quality of conductivity is also very necessary to make it adaptable to the season of the year. Cotton and linen are called good conductors of heat, as they take away the heat of the body rapidly and are, therefore, much used in hot-countries. Serge and wool, on the same ground, are called bad conductors of heat and are useful in winter months.

Chill is due to the rapid cooling of the body, and the material of our garment should be of such a texture as to avoid sudden chilling, and for this purpose light wool is considered best, as it absorbs moisture and the heat is carried away by it very slowly. Jaundice, Rheumatism, Bronchitis and Influenza often follow exposure to chill. Simple rules to follow in clothing are :—

1. Do not wear too many articles of clothing.
2. Clothes should allow freedom of movement.

Tight collars, tight garters, tight boots and shoes should all be avoided.

Tight collars cause pressure on large blood-vessels and nerves, passing through the neck, and interfere with the nutrition of the brain.

The pressure of garters is one of the causes of varicose veins, chilblains and much pain in the legs, owing to impaired circulation in the muscles and joints. Varicose veins are painful in themselves, but, apart from this, may lead to ulceration and other skin diseases.

Pointed-toed shoes and boots are responsible for much misery and many deformities. Most of us have suffered from corns and know how painful they are. The feet are naturally a very small area to support the body, and instead of reducing it still more by narrow and pointed shoes, we should add to it by giving a good, firm, broad sole. The shoe should be made for the comfort of the foot, and not the foot be compelled to accommodate itself to the shape of the shoe.

The effect of comfortable footgear on health is remarkable. Walking is the best form of exercise, and when shoes are not comfortable, one naturally takes a dislike to walking. For out-door sports the type of boot is, therefore, very essential.

3. The important parts of the body should be well-protected from cold and mosquito bites. Indians seem to be under the impression that it is only the trunk which requires looking after and that the lower part requires covering for decency's sake, and the rest it can do for itself. Such, however, is not the case. The heart is the seat of the government of the body and the territories near by are seldom in danger. It is only the places farthest away, such as legs and feet, which require careful attention and are the seat of disturbances. Microbes and germs generally find it convenient to get into the system through the lower part of the body. Parts near the heart have pure blood, and pure blood is not the right kind of food for the germs. It is too active for them. They like places where the blood current is slow and blood itself not very pure, and this is exactly the case with the lower extremities. In places where mosquitoes and sand-flies abound, the body requires protection against their bites, during the day as well as night. During the day a person is awake and can drive them off, but during sleep he becomes powerless, and the least he can do to protect himself is to sleep under a mosquito curtain.

Young children should never be allowed to crawl about with bare legs and short sleeves, owing to the danger of bites from rat-fleas, &c.

4. All clothing, whether of infant or adult, should be changed at night. It is a bad habit to sleep in day clothes. Anything worn next the skin must absorb the perspiration that comes

constantly from the body. It should, therefore, be removed at night and allowed to dry.

5. Some regard should be shown as to the choice of clothes in different circumstances. The hot weather, for instance, requires thin clothes, and white ones are the coolest. Elderly people and infants require to be more warmly clad, and the same applies to persons with bad circulation and those convalescing from a serious illness.

As in food and exercise, so in clothing, our Indian students are inclined to be indifferent. There is no such thing as forgiveness in nature, and whenever they are insufficiently dressed, they pay the penalty for their negligence. But where they suffer most is in the public estimation. It is a general complaint now-a-days that Indian students do not command self-respect, and undoubtedly it is so. My explanation to this is that they do not pay sufficient attention to their dress and, as things are in India now-a-days judged from the European point of view, they do not command the respect of their own European teachers, to say nothing of others. People have no time to enquire into the moral conduct or intellectual capacity of a boy: they judge him by his dress. When they do not find him correctly dressed, they at once conclude that he "can't be up to much." It is on this account that in every European and American country the utmost attention is paid to dress. People will sooner starve themselves than go without decent dress, and, as they are judged by their appearance, a poor person will always try to dress well. A millionaire can afford to appear in shabby clothes, but shop assistants and others, who are trying hard to earn a few shillings a day, cannot afford to neglect their appearance. They would lose their situation in a day; they must be neatly and correctly dressed. They will not hesitate in shaving themselves, cleaning their own boots and washing their own clothes; but they must appear neat and smart before others. To be correctly dressed is a sign of respectability, and Europeans value it very much. A dirty boot, dirty collar and unshaven face are repulsive to their feelings; and when they see an Indian youth speaking their language but dressed in neither Indian nor European style, they at once take a dislike to him, regardless of his other qualifications.

According to Susruta, the great Hindu physician, undressed hair is a sign of insanity, and yet we see any number of Indian students who do not pay the slightest attention to their hair. They might comb it once in a day, but nothing more.

Too much attention cannot, therefore, be paid to decent clothing, and every youth should try to appear as neat and smart as lies in his power. Outward appearance is an index of the inward state of the boy's mind.

Dress for exercise should always be loose enough to allow free play to the muscles, and the chest should never be constricted on any account.

The clothing of children should be loose and light, but sufficiently warm. The practice of covering the face while a child is sleeping, restricts air supply and increases the work of drawing the air into the lungs.

After exercise, a warm woollen coat should always be put on, to avoid sudden loss of heat and moisture.

Chapter XII.

EXERCISE.

For perfect health, every organ requires its due share of functional activity ; without this, nutrition suffers and then the organ wastes and eventually degenerates. Excessive activity also ultimately results in degeneration. The term exercise is usually restricted to the action of the voluntary muscles, and unless they are exercised, they are liable to become weak, and if not used, they atrophy or waste. This is seen in the case of some ascetics whose limbs atrophy through want of use.

The Value of Exercise.—The value of physical exercises lies in two directions :—

1. They increase the bodily vigour.
2. They educate the mind.

Each new exercise requires concentration of mind and an effort of will and memory. Games, Indian or European, are particularly useful in this respect. Ball games, so common now-a-days, afford opportunity for a variety of movements ; they also train the mind, as they require observation, accuracy, quick movements, judgment, rapid decision, determination and resource. Exercises are best taken out-of-doors and should not aim at the development of muscles only, as they render the body rigid. The muscles should be supple and should respond readily to the mind. Children should be trained—

1. To assume a straight and erect posture, whether standing or sitting.
2. To have all the muscles under control.
3. To move lightly and gracefully.
4. To breathe deeply and in a proper manner.

For this purpose, gymnastic exercises on horizontal and parallel bars are useful for boys over 14. Cricket, tennis, hockey, golf, football and physical drill are all excellent in training the eye and developing quick response to the will and rapid judgment. Their moral effect is also good, as nothing creates a better friendly feeling than the sporting nature of a boy, and different nations forget their racial feelings during sports.

Exercises involving running, jumping, skipping are excellent, both from a physical and educational standpoint. Deep, correct breathing should always form a part in the daily exercise.

Swimming is an excellent form of exercise, and every school boy should try to learn it. A swimmer may not only save his own life, but that of others also, if any accident happens on water. There is a favourite story of a professor and a sailor showing the importance of swimming. A professor one day went out sailing, and during conversation with a boatman asked him if he knew mathematics. The boatman said, ' No'. The professor looked at the man with an eye of pity and said, " You have wasted half of your life for nothing." The sailor remained silent, but shortly after, a storm arose and the boat was in danger of sinking. He then asked the professor if he knew swimming and the professor said, " No." Now the sailor looked at the professor and said, " What a pity ; you will lose your whole life now, as the boat is about to sink and you can't swim."

In Europe swimming is taught in every school, and in my opinion it is very necessary that our young men should learn this art also. There is no act so heroic as the one of saving a life.

Singing also is a good exercise for expanding the chest, and is strongly recommended for those with a weak chest.

Formerly, when so many ball games were unknown, walking was the most usual form of exercise. It does not train the mind, but, from a physical point of view, it is as good as any other form of exercise ; and its advantages are that it costs nothing, all ball-games being more or less expensive ; it can be taken alone, (all ball-games require a partner) and, therefore, one can suit one's own convenience.

Billiards is an excellent in-door game for training the mind to accuracy, judgment and rapid decision. It is suitable for wet weather and gives gentle exercise after dinner.

Indian exercises, such as *dand*, *mugdar*, *kushti*, *kabaddi*, *guli-danda*—all belong to the period when ball-games were unknown, and like many other Indian things are more or less individual. They lack the element of co-operation, and their value lies chiefly in the increase of bodily vigour. They do not train the mind in the same manner as modern ball-games do.

The effect of any form of exercise is—

1. That the muscles increase in size and become more capable.

2. When they contract, the blood flows more quickly through the blood-vessels, and therefore circulation is improved and the body becomes warm which flushes the skin.

3. On account of improved circulation, the action of the heart is naturally increased in vigour, and it beats more powerfully.

4. The sweat glands act more freely and perspiration comes out. Its evaporation regulates the body temperature. Cleanliness of the skin is therefore very necessary in exercise.

5. The supply of oxygen is kept adequate by rapid breathing ; fuller and deeper respirations are taken, the lungs become expanded and the respiratory muscles strengthened by the extra work they have to perform.

6. The increased tissue change creates a demand for more nourishment, and appetite, being nothing but nature calling out for more food, is naturally increased. Improved circulation stimulates digestive secretion, which renders digestion more perfect.

7. The abdominal muscles during contraction press on the organs beneath and exert a kind of massage, which improves the tone of the bowels and relieves constipation caused by slackness in the action of the bowels.

8. Exercise quickens the circulation in the brain, it increases mental activity or affords relief and refreshment after mental work.

Every new exercise is an education to the nerves.

Rest of function allows of recuperation of the substance. Rest must, therefore, alternate with exertion, neither being unduly prolonged.

Excessive exercise loads the blood with fatigue products and induces drowsiness. If the same muscles are used continuously and overworked, a spasm is set up. This is seen in the writer's cramp.

Exercise is undoubtedly very useful for the increase of bodily and mental vigour, but as every human system is not the same, one has to "cut his coat according to the cloth." It is a fatal mistake to consider what exercise is good for one child, must be good for another. Some children suffer from heart disease, and neither their parents nor their teachers are aware of it. It is, therefore, very essential for all children to be examined by a doctor before starting their school life, and periodically afterwards.

There is no such thing as abruptness or irregularity in nature, and the laws of growth and decay of the vital energy are as definite and constant as of any other form of energy, such as heat, light or electricity. A student of Biology knows that every living being, high or low, has three stages to go through :--

The 1st stage is the stage of rise, the 2nd that of maintenance, and the 3rd that of fall or decay.

Take the case of any animal. It first grows till it becomes adult, and this is the stage of rise ; after this, it enjoys and keeps up the energy for some time according to its active or indolent habits, and this is the stage of maintenance ; which is succeeded by dissolution, death or decay, the final stage. The same is the case with every man's life ; but the stage of maintenance can be materially prolonged and old age postponed by some attention to diet, exercise and sleep. Exercise improves vital energy, and indolence causes its degeneration, and, therefore, hastens death. If life is a sacred trust from the Almighty, it is the duty of every good man to take care of the trust and do his best to keep it in good condition and hold it as long as he can. Some Hindus have got an idea that this world is only a place of punishment, and as they believe in the transmigration of soul they argue that had their previous deeds been good there would have been no occasion for their souls to be sent back to this world again. They are, therefore, indifferent as to the state of their lives ; and if they die they consider one stage in their salvation is over. Such, however, is not the case, and, according to their own belief, they must realize that both punishment and reward are awarded in this world, and it is only by giving good account of the trust they hold that they can gain a step towards salvation, and any neglect shown to the trust must be an unpardonable sin.

Chapter XIII.

PERSONAL HYGIENE.

Personal hygiene is not only concerned with matters touching the health of the individual, but also embraces certain personal factors conducive to good health. Good habits, personal cleanliness and regular hours for sleep are just as essential for the maintenance of good health as food, exercise or fresh air.

Habit.—Habit originally meant "tight fit." Now it means something which "has come to stay." A habit once formed, is very difficult to change. It is on this account that habit is called "second nature." Influence of habit in the formation of character of individuals is known to all, but its influence on the physical and mental condition of men, particularly of children, can never be over-estimated. Unfortunately, it always seems to be easy to form bad habits, and difficult to form good ones. Selfishness appears to be in human nature, and whenever a person's self-interest comes in, it is easier for him to lie than to speak the truth. Perhaps the fear of loss or punishment induces him to do so. Every endeavour should, therefore, be made to teach a child unselfishness from the very beginning, and it will come to him only when he realises its beauty.

Some of the good habits which are conducive to good health and which should be cultivated from childhood are:—

1.—*Cleanliness.*—If a child is brought up to be clean, when it grows up it will be uncomfortable if dirty. Dirt is not only harmful, but antagonistic to our very existence. Cleanliness with regard to the food we eat, the air we breathe, and the water we drink is the very foundation stone of good health.

In India cleansing of the skin is of immense value, as the amount of perspiration and excretion of solids is considerable. The skin, the kidneys and the lungs all work together. If the pores of the skin get blocked by dirt, extra work is thrown on the kidneys and lungs which break down in course of time. It is therefore of primary importance to see that the pores of the skin are kept open and clean.

Besides getting rid of some of the waste material of the body, the skin has to perform two more very important functions *i.e.*,

1. It forms a protective covering to the body. In case of injury to the skin, disease germs which exist in dust and float in the air can get in through the crack with ease.

2. It regulates the heat of the body which is so essential to human life. If the body of an animal were to be varnished it would immediately die.

To keep the skin clean, a daily bath is necessary, and with Hindus it is a part of their religion. But ablutions which they perform by the side of tank or well are more productive of fever and chest diseases than personal cleanliness. The skin secretes an oily matter which causes the water rapidly thrown on the body to run off, as it would off a duck's back ; and unless rubbing or friction with a good rough towel is used such baths can do no good.

Soap is a combination of oil and alkali. When soap is rubbed over the skin, the alkali dissolves the grease and dirt in the skin which gets mixed up with the lather and so removed. But excess of alkali in the soap makes the skin rough. It is therefore necessary to have a good soap, and transparent ones are the best.

Cold baths are invigorating, but the practice of standing exposed to a biting wind in the cold season and then putting on partially saturated garments is a fruitful source of Pneumonia, Ringworm and other diseases. Cold baths should be taken as quickly as possible and in a place which affords protection from winds. The body should be covered immediately afterwards.

Baths should not be taken just after a full meal or during exhaustion. The best time for taking a bath is the morning ; if taken at night it should be a warm one.

If cold baths cannot be tolerated, warm or tepid baths may be used. Children's skin is thinner and more sensitive than that of adults. Great care should be taken when warm baths are given to them ; otherwise the skin might be scalded.

Care should be taken that the water used for baths is clean ; otherwise parasites such as guinea-worm and those of Ringworm, Itch and Eczema find their way into the system through the skin and cause painful skin diseases.

In ancient days when soap was not known, the use of 'Besan' as 'butna,' بٹنہ, was pretty common among the Hindus as well as Jews, and it was really very useful for cleaning the oily dirt from the skin. It also acted as a massage. By kneading and rubbing, the circulation was quickened and the muscles exercised, giving the person an exhilarating and refreshing feeling. Even to-day inunction of the body with some bland oil before bathing is a very popular custom in India. It keeps the body cool, renders the skin soft and supple, and entangles the dirt of the body and facilitates its removal especially when soap also is used. Moreover, it facilitates shampooing or massaging of the body which may with advantage be taken just before a bath.

Nails.—Nails are one of the appendages of the skin and require great attention. They should always be kept clean and never allowed to grow. Germs of disease collect under the nails and get into the mouth when food is taken. Besides, nothing betrays one's dirty habits so much as long dirty nails.

Hair.—Hair is another appendage of the skin. It requires just as much attention as any other part of the body. In case of women it is said that one hair is worth a pound of gold in weight. To keep the hair in good condition it should be well combed and then brushed at least twice daily. If the hair is thin and falls out it is a sign of general ill health or anæmia. An untidy head of hair is an indication of general slovenliness, and it is generally noticed that neglect to keep the hair clean and tidy is one of the first signs of some forms of insanity.

Microbic diseases affecting the roots of the hair cause dandruff or scurf, and later on baldness. A mild mercurial lotion or infusion of Quassia is often beneficial. But if the head becomes verminous, the best thing to do is to have the head shaved. Favus is very common among dirty children, and for this a doctor should be consulted without delay.

Oil is the natural food of hair, and if the hair is deprived of its food it must die. Europeans have a special horror of hair oils. They do not like anything greasy in hair, and the result is that, in spite of all the hair washes which the ingenuity of chemists can devise, baldness is on the increase, especially among men. Hats worn with stiff rims have also perhaps something to do with baldness, but I have not the slightest doubt that want of oil in the hair is the main cause.

Indian people depend too much on barbers for shaving purposes. Their razors cannot always be clean and are apt to convey many skin diseases. Every young man should make a practice of shaving himself, as it is a cleanly habit, saves money and makes him independent of a menial. Nothing adds more to the good appearance of a young man than a clean shave and tidy hair.

Teeth.—It is a good thing that Indians pay so much attention to their teeth. Good health depends to a considerable extent upon the teeth. Quite half the Dyspepsia going is due to the want of good teeth, for without them it is impossible to masticate, and unmasticated food is sure to set up digestive troubles. Want of good teeth in young people is one of the causes of consumption through debility, which results from chronic gastric disorder and continual absorption of putrifying matter from decaying teeth. All decaying teeth, whether of milk or of the permanent set, therefore, need attention. Besides indigestion and consumption, decayed teeth may lead to anæmia, sore throat, foul breath, dirty tongue, and formation of abscess in the neck. They should, therefore, be removed and artificial ones put in.

Tartar, a hard yellowish substance, is the great enemy of teeth and collects around them. It eats the gums away, and teeth become loose thereby. In elderly persons it is a source of great trouble. The gums become spongy and unhealthy, and bleed on touching, and the breath is usually foul. There is no medicine or tooth-powder which will dissolve this substance, and the only remedy is to have it scraped from time to time. Those who do so retain their teeth, otherwise lose them prematurely.

Loose teeth are of no use for masticating purposes, and it is just as well to have them pulled out and artificial ones put in.

Some people do not care for artificial teeth, but, apart from the point of view of mastication false teeth improve speech and prevent the lips from falling back which gives such a haggard look to the face.

Artificial teeth should be washed after every meal and and should not be worn when asleep.

Tongue.—Every elderly person understands the value of tongue cleaning; and washing of the face every morning before eating or drinking is a part of Hindu religion. These are excellent habits and should not be given up. Some young men, especially those who have been to Europe, follow the European custom of taking a cup of tea the first thing in the morning without washing the face or cleansing the mouth. This is not sanitary, as the germs and microbes which develop in the mouth during night, instead of being got rid of, are swallowed and might do a lot of mischief in the stomach.

Body-linen.—The skin is a delicate organ and requires to be covered by clothing

(1) to afford protection to the body against heat and cold and external injuries ;

(2) to assist in the maintenance of bodily heat ;

(3) for personal decency.

Not only must the body be kept clean, but also the clothes, especially those worn next the skin ; and unless they are changed according to circumstances and necessity, the objects of clothing are frustrated and health cannot be maintained. In dirty clothes lice develop very soon and make life very unpleasant.

2. *Truthfulness.*—The fear of punishment is very near to the child's mind, and in consequence an untruth escapes. Later on, as the fear of punishment diminishes, the ease of truth-telling develops. On the other hand, if the child is brought up in fear and timidity he is bound to lie when it suits his purpose. The stronger a person in character the more fearless and open-hearted he is. and, therefore, the more truthful. Fearlessness is, therefore, at the bottom of truthfulness.

3. *Honesty.*—We all have heard the expression "Honesty is the best policy"; and so it is. One dishonest act leads into another, and without a certain amount of trust and confidence no business in the world can be carried on. By unfair means some profit might be made at one time, but "sin is not hid," and sooner or later the trick is found out and the business falls to pieces like a pack of cards. If children are drilled from the very beginning in honest dealings, honesty becomes second nature and they would never stoop to do anything which is not right. *Praise for a good action has often a better result than punishment for a bad one.*

4. *Self-control.*—As we grow older we learn self-control ; but children are born with very little of it. After exertion, the brain and body both get tired, and temper being due to a tired brain suffers accordingly. The child, therefore, should not be scolded, but fed when he is in temper. There is a proverb "a hungry man is an angry man." The same is the case with children.

Self-control of the mind is as necessary as self-control of the body, and worry usually means that this mental self-control is lost. Worry is nearly always the result of overwork in some form or another and as judicious balance of brain and muscle work is necessary for good health, care should be taken that both are equally employed. Work is a necessity for all; but the exclusive use of the body on the one hand or the mind on the other does not tend to the development of a human being. The mind and the muscles both need developing in turn, and the recreation should be so planned as to counteract the effect of the daily work. A man doing heavy manual work should take his recreation in reading or in some sedentary occupation, while those engaged in mental work should have physical exercise of some sort. It is here that our young men in schools and colleges mostly fail. An Indian youth is not sporting by nature, and once he acquires a taste for reading he is all for mental work until he actually breaks down.

5. *Regular hours for meals.*—Nature loves regularity, and there is no such thing as irregularity in her. Everything in time and a time for everything should be the motto of every person who wishes to maintain robust health. The stomach, like other organs, gets accustomed to expect food at certain hours and if given at the right time it is relished and enjoyed, otherwise the stomach becomes indifferent and Dyspepsia and Indigestion must follow.

6. *Regular hours for rising and going to bed.*— Sleep is one of the essentials of life, and this is the only form of complete periodical rest of both body and mind. The necessity for sleep arises from the demand of certain nerve-centres which undergo waste during the hours of activity. Waste must be repaired and the repair must be equal to the waste.

The amount of sleep required for individuals varies with age, occupation and habit.

Age.—Infants sleep the greater part of the day, and the duration decreases as age advances. Children past the age of infancy require at least twelve hours sleep, and they must be put to bed early. No child up to the age of twelve should be allowed to remain out of bed after 8 P.M. An adult may do with about six hours sleep, but persons above sixty need more sleep than they did within middle life. It is not absolutely necessary that they should sleep all the time, but they ought to spend at least 8 hours lying down with all portions of the body on about the same level, so as to save their hearts the necessity for pumping blood against the force of gravity. It may be borne in mind that about two gallons of blood go through the heart every minute, and this gives some idea of the enormous labour which heart muscles have to perform and what an important factor sleep is in the retention of health in age.

Habit has great influence over sleep. Some people enjoy profound sleep and no amount of noise wakes them ; others sleep like 'cats' and wake up at the slightest disturbance. Excessive sleep makes the brain less active, while its deficiency leads to prostration and general restlessness. Weak and sick persons require more sleep and repose than healthy ones.

Occupation.—Persons engaged in mental work require more rest and sleep than those doing physical labour.

Heat has a paralysing effect on the nervous system, and in hot countries like India, especially in summer, people generally have mid-day sleep. It is condemned by some, but in my opinion, if it is taken in moderation (not exceeding 3 hours) it is not only refreshing, but invigorating. In summer, people get up very early and as the day is long a break in the middle is welcome to the system.

To sleep immediately after meals is a bad practice. Most of us have heard the old saying "after supper walk a mile," which is very good advice. Nightmares, bad dreams, &c., are chiefly due to this habit. There should be an interval of at least three hours between the last meal and going to bed.

By going to bed regularly at a certain time the body gets accustomed to regularity and sleep comes without much trouble, otherwise many sleepless hours are spent in bed.

Experience tells us that sleep before midnight and after, is not the same thing. Somehow sleep during the first part of the night is more refreshing and more wholsome than what one gets during the second half. Actors and actresses go to bed at 1 or 2 in the morning, and, although they sleep till about 10 A.M. and complete their 8 hours rest, yet they break down early, and there are very few who are not neurasthenic. We all know the old proverb—

"Early to bed and early to rise
Makes a man healthy, wealthy and wise."

Factors which interfere with restful sleep are :—

1. A too heavy meal on the one hand and insufficient food on the other.

2. Lack of exercise during the day.
3. Over-work.
4. Late hours and excitement of any kind.
5. Excessive use of tobacco, tea or coffee, especially at night.
6. Mental worry and habit of thinking while in bed.
7. Bites of insects, such as mosquitoes, flies and bugs.

All these factors are easily avoidable, and a person having the slightest desire to maintain his health should take every step for their removal.

Factors which court sleep and ensure that it shall be of the greatest benefit are :—

1. Plenty of fresh air, according to the season of the year. With sufficient bed clothes there can never be too much air.
2. Quiet and dark bed room.
3. Sufficient bed clothes, so as not to allow perspiration. Perspiring during sleep is not conducive to health. In fact, it is one of the signs of consumption.
4. An uncovered face.
5. The use of a mosquito-curtain in places where these enemies of mankind abound.
6. An easy mind.
7. Regularity in time for sleep.

Bad habits which disturb the peace of one's mind and, therefore, are detrimental to good health, may be mentioned as follows :—

1. The desire for gossip and scandal. Backbiting and finding faults in others is pleasant in the beginning, but when actual facts are found out this habit only brings humiliation and loss of self-respect. A scandal-monger is never happy and therefore can never enjoy good health. As a rule, he is short-lived.

2. Procrastination or putting off doing things at the right time causes a lot of mental worry and loss of confidence. Such a person's work is never finished and he can therefore never have peace of mind. Never leave that till to-morrow which you can do to-day.

3. *Idleness.*—An idle brain is said to be the devil's workshop. Work is essential for health, and a man without work can never enjoy health for any length of time.

4. *Untidiness.*—An untidy man always betrays the state of his mind and very soon loses self-respect. An untidy person has the least chance of success in this world.

5. *Excess in any form.*—Eating, driking, smoking, love of amusement, sexual matters. A person who indulges in excesses cuts his own root and can never enjoy the ordinary span of human life. He is doomed to die early.

6. Spitting and blowing the nose anywhere and everywhere is another bad habit, which should be avoided. Not only is it a dirty habit but it is dangerous to our fellow-beings. Since the discovery of disease germs it has been found out that lots of disease germs remain in the mouth and nose to wait for an opportunity to get into the system; and when a person is suffering from consumption, the germs of this disease abound in the sputum. Present civilization demands that everybody should carry a pocket handkerchief, and discharges from the nose as well as the mouth should be got rid of in it. This can be washed daily and changed as often as is necessary.

Chapter XIV.

WOMANHOOD IN INDIA.

In order to produce better and healthier offspring an examination of the state of women is very necessary, as a stream cannot be better than its source.

In no country is a mother more devoted to her children and command more respect from them than in India, and yet a girl, the future mother, from the day of her birth is considered a curse to the family she is born in. From the very beginning, Indian parents make a distinction between their boys and girls. A boy is a religious necessity to a Hindu, and when a male child is born there is joy and rejoicing in the family and alms are freely given to the poor, and there are congratulations from all the relatives and friends. At the birth of a girl everything is kept quiet, there is no show and the event is accepted as one which could not have been helped. People bestow care and attention on articles as they value them and, therefore, a boy in an Indian family always receives more attention and care than a girl does. Boys as a rule, are better fed and better clad; and as the law of inheritance makes them future heirs and successors, to the exclusion of girls, their health and welfare is of great concern to their parents. According to the customs of the country, the marriage of every girl is more or less compulsory, and as she has to leave her parental home after marriage, parents look upon her as the property of others and do not concern themselves much in her future welfare. Nobody is keen about her education and even now the first and last desire of most Indian parents is to have their girls betrothed and married as quickly as circumstances and customs allow.

Formerly, most of the girls used to get married at the age of 7, 8 or 9, and parents thought that with the marriage of their daughters their duty towards them had ended. Since the Age of Consent Act things have improved a bit, but even now it is only 1·9 per cent of Hindu women above the age of 15 and none above the age of 17 who are unmarried (Census Report of India 1911).

Their education has, therefore, so far been out of the question. During the last twenty years or so, a number of girls' schools have been opened in many parts of India; but the education imparted in them is of a very elementary nature, simply because as soon as the girls begin to love their books and are able to understand lessons they get married and are taken away. There are, of course, some superior schools and colleges where girls receive higher education, but the majority of the Hindu and Mahomedan girls get no chance of going there. And even there the education is of a classical nature. No attempt is made to give girls the kind of education which would help them in the upbringing of children, strong and healthy, both in body and in mind. Great stress is laid on their mental culture, and they go up for the same examinations as boys do. With the exception of perhaps music, the subjects taught to the boys and girls are identical. Somehow it is taken for granted that what is good for boys must be good for girls also, and no allowance is made for the entirely different sphere of womanhood.

The science of preventive medicine is of recent growth and its importance has so far, I am afraid, not been fully realized by the educational authorities in India. If any subject deserves careful teaching and can be more important than others, it must be the science and art of keeping good health. We all admit that health is the best wealth, and yet very few pupils are taught how to preserve their health. In every school great pains are taken over mental culture and passing of classical examinations, but physical efficiency is sadly neglected. The body is left alone and nobody seems to think seriously of the factors essential to health.

In matters of hygiene, applied knowledge means life, and applied ignorance means death. The future of every race depends upon its children, and as their fate is mostly in the hands of their mother, it is most imperative that we should do everything in our power to educate her how best to look after her offspring. As the ultimate object of a boy's education is to enable him to earn his living, so the girl's education should be carried out with the object of making her responsible for the hygiene of the home and the rearing of healthy children. Healthy children are the true wealth of a nation.

So far, the girls in India have been considered as creatures fit only for marrying purposes, and their education has been entirely neglected. Their ignorance has been one of the main factors in the degeneration of the Indian race which we see and deplore now-a-days. At present they are neither able to look after themselves nor to take care of their offspring, with the result that the infant death-rate in India is about the highest; and we all know that factors which lead to death, also bring on illness and leave survivors in a weakly and degenerate condition. It is said that no other domesticated animal has such a high rate of mortality amongst its offspring as Indian women have!

Superstition.—This ignorance and wastage of human life has naturally had a demoralising effect and has made Indian women extremely superstitious and weak in character. They have no idea of the methods by which diseases, such as small-pox and convulsions and rickets can be prevented and not being able to challenge them they try to appease them by worship and offerings. This has put them off the track entirely and left the causes of infantile mortality untackled. Ignorance has led them to believe that diseases are caused by the displeasure of gods and wrath of evil spirits, and, while they do everything in their power to ward off the effects of the evil eye and evil spirits by charms, amulets, and a thousand and one juggler's tricks, the insanitary surroundings are left alone and no attempt is made to rectify them.

The conditions under which the peoples of India lived formerly have now entirely changed but they have not as yet learned to adjust themselves to their new surroundings. Railways and other means of communications have opened out the country and density of population along the fertile tracts has considerably increased; but as raw produce is now exported to other parts of the world, the prices of most things have gone up, and there is a shortage of money to pay for daily necessities of life. This general poverty on the one hand and the density of population on the other has brought in the element of plague in India to relieve the overcrowding. In a thinly populated area, individual efforts might be sufficient to keep the house and environments clean and in good order, but under modern conditions of life we must learn how to work together and think together for common good, and this can only be done by the united efforts of every man and woman. Women live indoors more than men and their household duties keep them tied to their homes; and as plague is a disease, the infection of which is carried by rat fleas, and both rats, and fleas live in houses, it is more fatal to women than to men, especially at those periods when they are capable of increasing the population. Education in sanitary rules is, therefore, still more necessary in case of women.

Purdah system.—Ignorance which has brought the women of India to the level of animals is bad enough, but the purdah system, which prevails among the upper and middle classes in some parts of India, has rendered them still more helpless. Under this pernicious system they have become absolutely incapable of looking after themselves, and, instead of being agreeable companions, have become a life-long burden to the male members. If they wish to go out anywhere, they require the assistance of a male ; shopping is done for them by a male ; if they wish to write a letter, it is done for them by a male ; account keeping is out of the question as some cannot even count up to a hundred ; they are so shy of talking to strangers that they do not know how to express themselves when they wish to do so, and male agency has to be employed. The result of all this has been that they have lost all self-confidence and have become mere tools in the hands of male members who lord over them. As is natural, men have taken full advantage of the situation. They consider themselves quite justified in swindling women whenever they can get an opportunity of doing so ; in fact, a widow's property often becomes a bone of contention in the law courts of India and by the time issues are settled more than half of it is gone. From the inheritance point of view, a woman is no heir at all ; she has only a life interest. In matters of marriage, man enjoys full liberty and can get re-married within ten days of his wife's death, but a Hindu girl remains a widow for life. Helplessness has made these widows so submissive that most of the relatives make use of them as domestics, and they pass their days in this position without a murmur. In matters of sex there is, therefore, no equality or fairness in India, and as children are nothing but a trust from the Almighty it cannot be very pleasing to Him when trustees make such an invidious distinction and one sex is given preference over the other. One sex is the complement of the other, and in this world one sex cannot exist without the other. Neglect of one means ruination of the other, and this is exactly the present state of India. We have neglected our girls : our women instead of remaining our better halves have positively become millstone around our neck on account of which we have not only lost their good companionship, but have allowed ourselves to be cast down in the eyes of other nations. Through their ignorance our domestic hygiene is utterly neglected and our homes, instead of being nurseries for healthy and vigorous children have become the centres, of all sorts of ailments and superstitions. There is no such thing as forgiveness in nature ; as one sows, so one must reap. Illiteracy and seclusion have made our womenfolk weak in character ; their children cannot be expected to be strong in this respect. Character is the basis of manhood, and it is the lack of this element which, in my opinion, is keeping the Indians behind in the struggle of modern life. It was, I think, Dupleix who when talking of the Indians had made the remark that a handful of rice would buy them. The present state of the country shows that that great soldier was a good reader of character and was not very far wrong when he described the Indian character. It is this weakness of character which is eating away the Indian manhood like a canker and disqualifies Indians for self-respect in the eyes of others. For counting purposes we are over three hundred millions, but I doubt if we can even to-day produce a hundred men who are really men and would have the courage of their convictions. We are men to look at, but in reality we are men devoid of manhood. Very few of us have the courage of our convictions and, therefore, we lead a life of duplicity. Fear breeds timidity and untruthfulness ; courage fearlessness and straightforwardness.

If it is our desire to improve the material and spiritual prosperity of our race, we must rectify the source first. A cat cannot produce a tiger ; as long as our women are not in a position to feel their responsibility and have no self-confidence, regeneration of our race appears to me a physical impossibility. The degenerative work of several centuries cannot be rectified in one day ; but the present is the best opportunity and the work should be pushed on with vigour.

According to the census report of India, 1911, the female population of India is gradually going down for the last thirty years. At present there are only 921 Mahomedan women and 915 Hindu women to 1000 males, while in England their number is 1068 to 1000 males. This is bound to have a disastrous effect on the growth of the population in future. Migration of male population in England has no doubt something to do with the increase of females there ; but there is also no doubt that malaria and plague have been killing most of our women. Both are house diseases, and as the purdah system and household duties compel womenfolk to spend the greater part of their lives indoors and keep them tied to their homes, they suffer most. Malaria not only causes the lowering of vitality, but the lowering of vitality means a low birth-rate also. Through insufficient milk the child is practically starved to death. Lower birth-rate, infantile mortality, sterile marriages, and still births are all due to this same cause.

In addition to malaria and plague, there are also other causes which destroy female life in India :—

1. Hindus have a superstition that an only son can carry on the line and the domestic rites, and that a girl is of no use for this purpose. This belief makes the son a religious necessity. The birth of a girl is therefore unwelcome to a Hindu parent and he dislikes a girl baby. There may be no actual dislike, but passive neglect there is decidedly, and the fact that Hindus have 996 girls to 1000 boys, while Mahomdans have 1013 goes to show this neglect (Census Report of India, 1911). It is truly said that in Hindu families parents look after the son and that God looks after the daughter. She receives less attention when ill and less and worse food when well. As the son is preferred to the daughter, all the care and attention and dainties are lavished on him. The death-rate of girls up to 5 is therefore very high.

2. Another superstition which a Hindu labours under is that it is a social disgrace if the daughter is not married and that it is only the marriage which saves the father's soul from Hell. About the age of 5 the father therefore begins to think of a husband for his daughter, and about ten it becomes an urgent matter to him. Dangers of premature sexual relation, functional derangements caused thereby, and the risk of parturition at a very early age are fruitful sources of female mortality between the ages of 15 and 20. To make matters worse, there is no skilful midwifery. Hindus have their own ideas of purity, and a woman during confinement is considered impure. No high caste woman would therefore touch her at this period, and women who call themselves midwives are the lowest of low castes. Their knowledge is next to nothing, their methods are primitive, they are uncleanly in person and have no idea of asepticism. Infantile mortality and death of mothers during the child-bearing period are therefore enormous. Lockjaw is looked upon as the doing of a demon ; they try to ward him off by feasts on the 6th day and 12th day of confinement.

Ignorance such as this can be overcome by education only, but there are serious difficulties in the way of female education in India. Apart from the difficulties of the purdah system, early marriage and lack of female teachers, there is a feeling that the profession of teaching cannot be pursued by a good class of women. From the Indian point of view, the life's object of a woman is marriage. If married, her household duties must prevent her from teaching. If she teaches she can have no household duties. She must neglect them. Unmarried women, to an Indian mind, are no better than what they should be. The idea of a mother teaching her own daughters does not appeal to an Indian mind. There is therefore no class of women in India which can provide teachers except Hindu widows or Christian women. To widows there is some social objection and to Christian women both social and religious. Female education is therefore still very backward. Out of seven million pupils who attend educational institutions in India at the present time, over six millions are boys and barely one million girls; and in regard to secondary education, the proportion is even less. An Indian home, in the absence of female education, is not a very intellectual place, and young men of intelligence have to find such a place elsewhere and are apt to look for it in the houses of city courtesans—the danger of which is obvious. In spite of the rapid advance which education is making in India, the proportion of literate females is still very low, *i.e.*, 49 per 10,000 of females, which shows that the indifference of the public, the absence of thoroughness and steady endeavour and the difficulty about teachers have still to be got over.

Other civilized countries, such as Europe, America and Japan realized the question of their womenhood long ago; and, as they made no distinction between their boys and girls, they are now prospering nations. Their girls are well able to look after themselves, and their women instead of being a burden to men are their charming companions and help them by every means in their power.

Formerly, women in these countries were looked upon as "lesser men," and it was thought that the duties of both were very much alike, with this exception, that women being the weaker sex could not work as hard and as fast as men, without running a very grave risk of their breaking down altogether. But preventive medicine, which is a science of comparatively recent growth, soon rectified this mistake and cut out the sphere of woman's activity as entirely different to man's.

How infant death-rate came to the notice of the public.—Immediately after the discoveries of Pasteur and Lister, registration of births and deaths was introduced in England (1864), and since then a good many things have been learnt in connection with health statistics. One of the things observed was that the real significance of a death-rate depended upon the average age of the population, and this could only be known if the persons of that age in the community could be counted. This was difficult to obtain with each year of age, but was readily found in the first year of life because of the compulsory registration of births. Infantile mortality thus soon came to the knowledge of the public, and, as it was deplorably high, soon gained notoriety and attracted the serious attention of the nation. It was discovered that this infantile death-rate was mainly due to the ignorance of mothers in mother craft, largely to insanitary environments, partially to penury, and occasionally to criminal neglect. Every profession, it was noticed, required a certain amount of training. Nobody, for instance, would think of making a dress without receiving a training for it first; but in case of mothers nobody thought that they wanted any knowledge about the feeding and care of children before their arrival and had to gain their training and experience at the expense of their poor babies. Instruction of mothers in mother craft was, therefore, considered the best means of preventing the greater part of infantile mortality; and it was also thought that if the mothers throughout the country possessed a little more knowledge of the causes of disease and the means of avoiding them, many children who were either cut off prematurely or lived a stunted life might have been healthy, hearty, and happy men and women.

Every mother who brings a child into the world has the duty laid upon her of bringing up the child in such health as will enable him to do the work of his life. A mother, if ignorant, although she loves her children and is ready to die for them, may be doing or allowing things to injure their health that will cause herself and them infinite trouble and sorrow. To keep children in health is much better than the most loving nursing in sickness.

A mother may not be able to give her child money or a great place in the world; but every mother can do her utmost to take care of her health before the birth of her child, and by doing so she will help to ensure her child the priceless inheritance of a good constitution. He will have a much greater chance of getting on well in the world if he is strong and healthy than if he is puny and ailing. Many of the diseases and sufferings which people have to bear have had their foundations laid in the mother's womb. It is, therefore, very important for the mother to be in good health when confinement takes place. If the mother is in good health, she will suffer less and will have a much better "getting about." Good food means good blood, and if mothers make it a point to have sufficient and wholesome food, the principal cause of weakly infants will be reduced. Interest of children demands that expectant and suckling mothers should take care of themselves.

Infant mortality.--It is now recognized everywhere that infant mortality is the most sensitive index we have of social welfare, and babies potentially represent the health of the nation. Infant mortality is considered a deep wound in the nation's side. The infant welfare movement, therefore, meets an essential need and has became deep-rooted in modern conditions. France, with its anxiety of a low birth-rate, has long been a pioneer in such work. Belgium, a small country of seven millions population, has 77 institutions for infant care. In Germany they have 555 such institutions. In England there are 200 infant welfare centres under the guidance of the National League for physical education and improvement. The object of these centres is educative. They teach knowledge and habits which are conducive to the saving of infant life and aim not only at saving life, but also at raising the standard of health and thereby increase the strength and resisting power of the survivors. The result of all this care is very strikingly shown in the Census Report of India, 1911. While the annual rate of increase in population in India, in spite of exceptionally high birth-rate on account of the universality of marriage, varies between 3 and 4 per mille, it is about three times as much in European countries, where marriage is not universal and therefore birth-rate not so high. In England and Wales the population increases at the rate of 12 per mille per annum; Holland shows much about the same rate; Germany shows 10·8; Belgium 9·6; France, which is said to be a decaying nation, shows an increase of 1·9. If the rate of increase speaks for the health of a nation, India must have a very low vitality. Famine, unsatisfactory state of public health, cholera, plague, malaria and smallpox are no doubt some of the principal causes of this low vitality; but the status of our women and their ignorance accounts for a great deal, and, as far as this goes, is entirely preventable and within the power of all of us to stop.

Formerly milk depôts in Europe were considered as a panacea for infant ills. But now the mistake has been discovered and emphasis given to the education of the mother; and for this purpose schools have been established in every civilized country. These schools teach a mother general principles how to render herself healthy and fit for the great responsibility of motherhood, and explain to her the rules which should guide her before and after the birth of her child, for the benefit of both. The gain, they maintain, is not only in lives saved, but also "in the reduction of the terrible mass of human sorrow and pain embodied in the empty arms and aching breasts of mothers bereft and whose suffering has been fruitless."

It is far from the intentions of these schools to debase the human stock by saving any and every life. Their desire is to improve the race and to give a good account of themselves to eugenics. They help only those who with a fair chance are capable of helping themselves and try to stimulate the growth of seed that is sound and good, and not that which is not socially beneficial. According to the memorandum issued by the National League they have seven objects in view:

1. That a mother should be able to receive expert advice as to the condition, treatment and care of her apparently healthy baby.

2. That the infant should be thoroughly examined by the doctor when first brought, and at intervals afterwards. These are called "Infant consultations," and infants are inspected at least once a fortnight.

3. That the records of such examinations should be kept in such a manner as to form a record of the family history and conditions which might be useful for future use.

4. That there should be a systematic provision for home visiting. Members not attending consultations regularly should be looked up. Regularity of attendance is considered essential.

5. That the work of the school should be dissociated as much as possible from the giving of relief in money or in kind.

6. That there should be a provident club attached to every

school in which mothers may be encouraged to make provision for confinements.

7. That there should be a central authority as a co-ordinating and guiding centre of enlightenment to which all local schools should be affiliated. This central Bureau is to embrace all sides of the question and become a potent source of information and inspiration for all efforts towards the betterment of the upbringing of infants and young children.

Mother-craft competitions are frequently held, tea is provided free of cost for competitors and prizes and certificates of merit are awarded in each class. Made up and mended garments are exhibited at these competitions and mothers show their skill in cooking the best dinner for four persons (father, mother, and two children) at the lowest price and also show how to wash a set of baby's long clothes. The mother and child showing evidence of having profited most by the instruction given at the school receive a prize and certificate.

The schools, "Infant welfare centres," as they are called, are small in size, and in almost every part of the town, as mothers cannot be expected to go long distances with their babies. A small centre has, moreover, a local spirit and can be better adapted to local needs.

Women, of course, predominate on the committees. In fact, the management of all these centres is more or less in the hands of ladies. The schools insist on breast-feeding, whenever it is possible. It is found that the cheapest way to feed the baby is to feed the mother, and therefore cheap but nourishing meals are arranged for expectant and nourishing mothers in cases of emergency or exceptional distress at a very small cost.

Old notions die hard. Even in civilized countries, like England, some mothers object to have their babies weighed at Infant consultations, as they consider it unlucky. With a little persuasion, however, they give in, especially when they see other babies weighed and nothing happening to them.

Life being most precarious during the first year, children under one year used to be the special charge of Infant welfare centres, but now they go beyond and take charge of all children under school age and link the work with that of school medical inspection.

All this work is done by private philanthropy in England, In other countries, such as Belgium and France, Government also gives grants to promote the welfare of infants.

But the State being the ultimate parent of the child, no systematic work for the child's welfare was possible until the medical profession in England was associated with the administration of law for children. The Midwives' Act was passed in 1902 which prohibited the employment of unqualified midwives and thus saved the lives of lots of mothers and infants at birth from ignorant hands. In 1907 the Notification of Births Act was passed, and this is justly called a "safety alarm" that calls out a number of other agencies that act directly and indirectly upon the mother and child. This Act insists on the notification of birth to the Health Officer of the district within 36 hours. Every infant, thus, comes under the immediate supervision of the health authorities, and everything necessary is done for the welfare of the mother and child. Under this Act, doctor, matron and midwife have to act in harmony.

The Medical Inspection of School Children Act was introduced in 1908. This has put all the children of school-going age (from 5 to 14) under medical supervision ; and elementary education being compulsory, no child escapes medical inspection.

The National Insurance Act of 1911 came into force from January 1913, and under the provisions of this Act sixteen million people of working age in England have come under medical supervision, and free medical help is rendered to them.

As a result of all these wise Acts, the death-rate of infants as well as that of the population in general has been materially reduced and general health is decidedly better than what it was ten years ago. A lower death-rate for infants means a lower damage-rate for youths, and stronger and longer lives for the general public.

In addition to these Acts of Parliament in England, the State exercises its influence through the schools also, and this influence is the principal source of improvement in the home and early environment of the children. The school and health authorities have come to the conclusion that every girl while at school should have ample training in household knowledge and the rearing of infants. They should have practical training in the routine duties of home life and in the intelligent handling of babies and young children. They should know how to clean, nurse and take care of infants and safeguard the health of the home. It is argued that when a workman knows his craft he rejoices in it. and if the girls knew home-craft there would be less unhappiness in homes. If the girls are taught how to take care of infants, it will diminish not only the high rate of infantile mortality, but also the large amount of unnecessary ill-health and physical suffering caused by neglect in infancy and childhood. Education is concerned with the bodies as well as the minds of the scholars, and a practical knowledge of the common conditions which affect health and physical efficiency is as necessary a part of the purposes of a school education as intellectual attainment. Book-learning hitherto was regarded as the supreme purpose of school training. An attempt is now being made to make the teaching more practical, especially in the case of the elder girls, by arousing interest in, and increasing the knowledge of, the ordinary routine of domestic hygiene, including infant care. The training is to be of a twofold nature; namely, a training in domesticity and a training in infant care and it is clearly designed not to replace but to stimulate and encourage teaching by the mother at home.

External insanitary circumstances do, no doubt, exert an injurious effect on the health of infants, but a high infant mortality rate must depend in great measure upon the conditions of domestic surroundings, upon the health of the mother, and upon the intelligent care which she is able to bestow on her child. There can be no doubt that a substantial part of the infant mortality in every country is directly due to ignorance and incapacity of the mother respecting the conditions necessary to healthy infancy. The infant for which an untrained or careless mother is responsible is, if it survives, extremely likely to grow up delicate and weakly, and is consequently liable to fall a victim to one of the numerous diseases which affect children. Many of these diseases can be guarded against and prevented by an intelligent knowledge of infant management. Rickets, for instance, is due to unsatisfactory home conditions and unsuitable feeding, and can be prevented if a child is properly fed and cared for from birth. The same is the case with Tuberculosis.

Such being the problem, various methods have been adopted to introduce the teaching of infant care and management into public elementary schools. In some, a separate course, extending over three years, is given on the subject, and the desire is to fit every girl to become a perfect wife and mother and to inculcate in her the vast importance and nobility of managing a home. The teaching is thoroughly practical in character, and lectures are delivered in a simple and convincing way. In other places day nurseries or "crèches," as they are called, are utilised to provide facilities for enabling girls from the public schools to obtain practice in handling and managing infants under skilled supervision. Each girl brings a little child to school with her, and a half-day is spent in learning how to take care of, interest, teach, and play with these children. Such girls are selected from the upper standards of the public schools and regularly spend half a day at one of the day nurseries for a period of two months. Practical demonstrations are held at a day nursery which is situated close to the school. The girls are shown how to undress, bathe, dress and put to bed infants and little children. They are also taught how to prepare "bottles" and how to feed a baby.

The principles underlying the form and character of such teaching are the following:—

1. That it should not be an isolated and separate subject, but should form part of a general course in Personal and Domestic Hygiene and Home Management. The entire subject should be considered as a whole, and the whole should be built in a homely way upon a broad foundation of elementary facts well within the range of knowledge of the girl. Each new part of the instruction should, as far as practicable, amplify the teaching given at an earlier stage of the course, and the training in personal hygiene and infant are should be connected up, as far as possible, with cookery, laundry work, and housewifery where classes for these subjects exist.

2. That it is not desirable to give formal teaching in Hygiene to children under seven years of age or in Infant care to girls under 12 years. Teaching in Infant care should be postponed for the last two years in the girl's school life.

3. That all such teaching should be given in a practical way. Infant care is a practical homely applied science, and the test of success is not the examination in book-learning, but a healthy way of life, practical housewifery and sensible motherhood. At the end of the course, each girl ought to know how to wash, dress, and feed a baby and how to undertake the home management of young children.

Incidentally, the children may be taught pleasant, easy manners, how to behave well at table, how to speak nicely to others, and so on. In this way they may acquire habits which will be of the greatest use to them in later life.

To carry out these principles the Board of Education in England, in their memorandum on the teaching of Infant care and management in Public Elementary Schools of 1910, suggested the following course :—

A. For girls bettween 7 and 12 years of age—

1. Personal hygiene, including simple lessons in neatness.

2. Fresh air and ventilation, dealing with the necessity for fresh air and the value of sunshine.

3. Warmth. Why people and little children should be kept warm and free from chills ?

4. Cleanliness. The necessity of cleanliness to health.

5. Eating and drinking. Why food is necessary ? What to eat and what to drink ? The value of milk as food for babies and children.

6. Clothing. The kind of clothes to wear. How to keep them clean and in good repair ?

7. Sleep. Why sleep is needful ? Why children should go to bed early ?

B. For girls between 12 and 14 years of age—

The teaching of these girls is a direct continuation of that already given to the younger girls. In addition to this, they also learn—

1. House keeping. How to spend to the best advantage and how to make the home comfortable, pretty and cheerful ; thrift, &c :

2. Lessons in Temperance.

3. Simple lessons in house-nursing.

4. Personal Hygiene and the Elements of the Health of a community. This includes sanitation of the home, removal of refuse, personal health, and prevention of Tuberculosis.

5. The care of infants and young girls. Necessary attention is given to the personal hygiene of the child and its early training in cleanly habits. The dangers to child life arising from unsuitable food or methods of feeding, from dirt in any form, from insufficient clothing, from cold or chill, from inadequate sleep, from lack of air and exercise, are all clearly pointed out and impressed on their minds. Mother's own health during pregnancy and lactation and the effects of her sickness on the child are also taught with care.

The course suggested is thus complete; but it is not proposed to stereotype or crystallize too definitely the line which should be followed. The needs and opportunities of each educational area differ widely; and the subject being new it is not likely that the same course would meet the variety of demand. Ample scope for discretion is, therefore, given.

It is fully understood that unless the teaching of Infant care is easily capable of practical application in the home, it will have no permanent value; and as home influence is always stronger than that of the school, care is taken that no hard and fast line is drawn between school maxims and home customs. Steps are taken to enlist the hearty sympathy and co-operation of the mothers. Children are encouraged to talk over at home what they learn at school, and bring things from home for demonstration purposes. Little gatherings are arranged to discuss the lessons with the mothers themselves, and as the subject is of considerable interest to them these meetings are made of great educational value and many valuable matters of hygiene are taught to them. Every endeavour is made to make the teaching regular, continous and practical in character. Every girl in the class gets her chance of participating in the practical work and carries out each step so often that she cannot help learning to do it well and thoroughly. Questions and discussions are encouraged.

The teaching in Infant management is regarded as the culminating point of the teaching of Hygiene throughout the school-life and is available for all girls during their last year. Girls who are dull and backward in their ordinary school lessons often respond to teaching of this kind in a remarkable way, and thus not only enjoy and profit by the lesson itself, but the mere fact of their discovering that in this respect they are equal to, or even better than girls whom they have been accustomed to regard as superior to them in all ways, frequently exerts a most happy and beneficial effect upon their general intelligence. They learn that intellectual attainment is not the only issue of true education and that in learning the art and practise of infant care they are helping to secure for themselves their true place in the future of the State. They also learn that motherhood and the rearing of healthy children are the noblest of all callings.

There is in the womanhood of the nation a great force of instinctive love for childhood which penetrates even those women who do not happen to be mothers. It is through women that wise enactments for the betterment of the race and the upbuilding of character can be secured.

This is not all that the State has done in England for the distribution of knowledge as regards health.

Miss Florence Nightingale, who took such an active part in nursing the wounded and caring for the sick during the Crimean War, after her return to her country recognized that prevention was better than cure and that the instruction of mothers was one of the best means of preventing disease. This sad want of knowledge, she thought, could probably be best removed by instituting Health visitors throughout the country who could visit the homes and give the mothers the instruction they needed to prevent the death of their children or their disablement by disease. Even from a monetary point of view she pointed out that "no work was so unproductive as illness which can be prevented, no extravagance so pardonable as that which looks on while every law of health is being broken, and then is compelled to pay for doctors and nurses in countless cases where they ought never to have been wanted at all."

She further pointed out that, while sanitary books, pamphlets and lectures of all sorts are good in their way, they fail to carry health home to the millions of rural mothers and girls, upon whom so largely depends the health of the rural population. What is read in a book stays in the book. She, therefore, advocated the employment of Health visitors who would go and teach practical domestic sanitation to the mothers and girls and show them better things without giving any offence.

During the last twenty years a great advance has therefore been made in promoting the Health Visitors' movement, both in towns and in the country. The principal duties which these visitors are called upon to perform are as follows :—

1. To advise expectant mothers on the management of their health and as to the influence of ante-natal conditions on their infants.

2. To follow up the notification of Births and to visit homes when doctor and midwife have ceased to attend.

3. To note conditions of ignorant feeding or non-supply of sufficient and nourishing food, and to take judicious steps to correct these evils.

4. To give advice on the proper feeding of infants; to warn mothers against premature weaning; to inculcate the importance of breast-feeding until the teeth appear; and to see that foul feeding-bottles and "comforters" or dummy teats are not used.

5. To promote and encourage the practice of weighing infants regularly and to instruct in, or remind mothers of, the simpler rules of Hygiene in relation to the home and its inmates, and otherwise to assist in preventing the spread of such diseases as measles, whooping-cough, &c.

6. To point out the usefulness of vaccination against smallpox.

7. To advise cases of Incipient Phthisis to go to sanatoria and of incurable cases to go to Infirmaries.

8. To promote a knowledge of the value of fresh air and of cleanliness in the home.

9. To instruct and guide in their work the voluntary District Visitors who assist in Health visiting.

10. To note any insanitary or foul conditions in any of the homes visited and in any of the inmates of the same, and to report these points to the medical officer under whom they work.

11. To attend at factories during the dinner hour, at mothers' meetings, girls' clubs, and on other suitable occasions, for the purpose of giving talks on sanitary matters.

12. To keep a systematic record of all cases.

It will, thus, be seen that the duties performed by these ladies are very important ones, and it is needless to add that every care is taken to select the right person for the right place. These Health visitors are ladies of great tact and ability and well-fitted and qualified to perform the duties entrusted to them. They are simply advisory officers and have no power of enforcing compliance. Some of them are salaried and others voluntary. In any case, they are well-educated and thoughtful women, with tact and judgment, really desirous of helping their fellow creatures and making themselves the real friends of the people whom they visit and whom they are employed to instruct and assist. In 1910 there were doing such work in England alone 471 salaried and 964 voluntary workers; and as the movement has been making a steady advance, the total must be close upon 2,000 now. This shows what an enormous amount of good women can do if the material is only properly utilized.

The average rate of mortality among infants under one year to 1000 registered births in England and Wales in the years 1899-1908 was 138, and it was reduced to 109 in 1909 after the introduction of the notification of Births Act. With the help of this measure and instructions given to mothers and elder girls in infant care in the elementary schools and the employment of women to teach health at home, sanitary knowledge is gradually spreading and infantile death-rate is slowly but surely declining. It has come down to 90 now, but this too is regarded as unduly high, as in Norway and Sweden they have succeeded in bringing it down to 50; and what is possible in Norway and Sweden must be possible in other places also, if the same amount of care is bestowed. Excessive infant mortality is now-a-days taken as a sure sign of national degeneration.

As has been pointed out, female death rate and infantile mortality are both excessively high in India; and this shows what a poor chance we have for our national existence under the present circumstances. To say the least, one out of every five babies born dies within the first year of its life, and the last Census Report of India shows that the proportion of females to males has been gradually going down. When we take into consideration the ignorance of our women; the unwelcome treatment they receive; bad midwifery; premature marriages; absence of such acts as notification of Births Act and Midwives Act; how they are shut up in small, unhealthy and unventilated rooms at the time of their confinement; the things they get to eat during this critical period of their lives; the fact that all fresh air is rigidly excluded from all their surroundings; it is no wonder that the female and infant mortality is so high in India; rather the wonder is how so many survive the treatment they receive. Yet so powerful is the force of custom that even those who regret it cannot venture to rise above it.

Customs and occupations must exercise a great influence on the health of a race. If women are cooped up in a zenana to live an inactive and secluded life, they do no healthy work or exercise to ensure the health of the body. They have no manual duties of the household; they pass their time in listless conversation; the idea of respectability has stopped their going to bathe in the local river or tank in the morning; they now-a days draw no water from wells after the oriental custom. All these have a most pernicious effect upon their health. They soon ruin their health, and become victims to disease, premature decay and untimely death. The lower classes are really better off in point of health, and are more prolific. They do not marry early, their females are not shut up in the house, husband and wife work together and enjoy outdoor life. All these points make for the health of their females, and good health means greater fecundity.

BY THE EDITOR
B. M. J.

Chapter XV.

BABYHOOD IN INDIA.

Healthy babies form the true wealth of a nation, and no nation is more fond of children than the Indian. As the life of a baby is measured more by its pre-natal conditions than by its post-natal environment, it is essential that in discussing the question of infants the start should be made from the child as he is conceived in the mother's womb, and from this the question of care in pregnancy is inseparable.

Pregnancy.—An expectant mother deserves every care and consideration; and, in order to prevent sickness in the pre-maternal state, she should be early brought under medical supervision. Healthy parentage will naturally produce healthy children.

The first important thing to know is that during pregnancy the blood becomes altered. It is more or less in a poor watery condition, and to make it pure and rich, plenty of fresh air and good food are necessary. A mother may not be able to give her child money or a great place in the world; but every mother can do her utmost to take care of her own health before the birth of her child, and by doing so she will help to ensure to her child the priceless inheritance of a good constitution.

Good food need not be costly. Plain food, such as bread, butter and milk is as nourishing as any. She should eat whatever she likes and whenever she likes. Stimulants are bad during the period of pregnancy and should not be taken.

Too much or the wrong kind of exercise during pregnancy is very bad. It is dangerous to the life of the baby in the womb to lift heavy weights or to do heavy labour that may strain the body. It is also very bad to stretch up to a high shelf to reach things down or to throw clothes over a line, as any of these acts may bring on abortion or serious injury to the inside. Too much running up and down in the house is also bad for the same reason.

Too little exercise is also bad. We all know that if we do not use our limbs they become weak, because the muscles do not get the exercise which strengthens them. In just the same way, women who lie about and idle away all the time before the baby is born weaken their muscles, and then when the confinement comes on they have not strength to bring forth, and the muscles of the body are in a weak, flabby condition. If muscles of the body are in this state of course the muscles of the womb are so too; and this is the cause why hæmorrhage or flooding is so common in women in India, where the heat and customs of the country make it difficult for a woman in the upper classes to take sufficient exercise. Women themselves know that those who drive in carriages and who lie about too much, have always a more difficult time than those who have to exert themselves and stir about the house. Gentle exercise such as a walk, during pregnancy is, therefore, very necessary.

Every miscarriage, no matter when it takes place, is a serious matter, and must be treated seriously. If neglected, many evil consequences are likely to follow. Many serious womb troubles constantly follow neglected miscarriages. There is, in fact, more danger in proportion to their number from miscarriages than from confinements.

Other troubles of pregnancy are sickness and constipation. This " morning sickness," as it is called, is so severe in some cases that it has caused abortion. As a rule, it passes off after 2 or 3 months; but whenever it is very bad medical advice is necessary.

Constipation is a fruitful source of anæmia, and should not be allowed to persist.

The two greatest dangers in confinement are from puerperal fever and hæmorrhage which are the most common causes of death actually associated with childbirth.

Puerperal fever is simply a form of septic blood-poisoning, and the only way to avoid it is to have everything that goes near the lying-in woman perfectly clean and to take care that the hands of the people who attend her are thoroughly washed and then rinsed in an antiseptic lotion.

Hæmorrhage or flooding is very dangerous. It must be treated at once. It may happen during pregnancy or after confinement. In some cases, instead of violent bleeding, there may be only a constant slow trickle which, if not carefully watched, may cause the mother's death. It is therefore always safe to send for a doctor the first thing.

Above all things, during and after confinement, the room should be kept sweet and fresh.

In Europe parental alcoholism is one of the most common causes of ante-natal infantile mortality; and it is a matter for thankfulness that we in India are, so far, spared this evil. In Europe they also have consultation centres for expectant mothers where whatever is necessary is done for them. They are kept under medical supervision until their troubles are over. Such an arrangement in India, under the present circumstances, is out of the question, and expectant mothers can only be attended to individually.

Birth.—At birth bad midwifery is the greatest danger to which the mother and child are exposed in India. With the exception of very few qualified midwives here and there, the country is teeming with ignorant and illiterate low caste women, who call themselves midwives, but, from the modern point of view, hardly know anything of their profession. The great misfortune of the country is that on account of caste prejudices a better class of women are not available for this profession. Until the material is forthcoming and trained midwives are available, no effective control can be had over an infant's environment at birth, and this great cause of female and infantile mortality must unfortunately continue.

Before the passing of Midwives Act in 1902 and Notification of Births Act in 1907, there was no effective system of dealing with the new born in England also, and infantile mortality used to be double what it is now. It is by the help of these two Acts that births and the sequelæ of births have been more or less safeguarded. The care of birth and infancy is now considered a national obligation. Every mother is compelled to employ a qualified midwife or a doctor at the time of childbirth; and if she neglects doing so and anything happens to herself or the baby, an inquest is held and parents punished for negligence. The National Insurance Act of 1911 now allows a mother a confinement allowance of 30 shillings (Rs. 22-8-0) at child-birth to defray medical expenses.

The medical officer of the district examines bags of the midwives under his control twice a month, and in case of any septic poisoning an enquiry is held and the midwife's license is suspended for six weeks if poisoning is found to be due to her carelessness. Thus midwives are kept well under supervision.

Care of mother after confinement.—In an industrial country like England, women working for their living have the highest mortality among their infants, as their system gets run down and they are unable to look after their work as well as their child. They require rest before and after confinement; care is now taken that for at least four weeks before the child is born and longer after the confinement, mothers remain as mothers and not machines. During this period the mother has to safeguard her health as well as that of the child.

Care of infant.—An infant after its arrival into this world requires careful looking after, as aftergrowth and development are greatly affected by the first nine months of its life. There are many factors leading to healthy development but the most important naturally is the feeding.

Breast-milk is undoubtedly the right food for the infant. In the animal kingdom, apart from human beings, the mother produces the food for her young ones, and there is no question as to its suitability. The same, unfortunately, cannot be said of all human mothers; perhaps owing to the fact that, whereas the lower animal spends the whole of her energies for the time being in the nursing of her young and, having no care apart from this, is able to regulate her life with that end alone in view, the woman has often to find the ways and means to feed other mouths than that of her young baby to whom she can give a small portion only of her energies. The consequence is that every mother does not have sufficient breast-milk for the child.

Mother's milk is a perfect food, containing all the materials for growth and development. It is a living substance. The food elements are present in an easily digestible form. In a healthy mother it is absolutely pure, going straight from the mother to the child, with no opportunities for the entrance of germs.

It has been proved that children who are breast-fed show a considerably lower mortality from infective diseases so common in hand-fed infants. Death due to bad feeding ignorant people attribute to providence, but God, who is so just and merciful, can never mean that children of any parent should die if His natural laws are observed.

Suckling stimulates the secretion and improves the health of the mother in many ways. It is therefore good, not only for the baby, but for the mother also.

Indian mothers, so far, are very willing to suckle their babies; but the difficulty in their case is that many of them do not possess sufficient vitality to secrete enough milk. This is especially the case with young girls who become mothers before maturity. In such cases, recourse has to be had either to a wet-nurse or hand-feeding.

Indian mothers are so fond of their babies that they tolerate everything and follow no rule. This is not right. A baby should be taught correct habits from the very beginning. Alternate breast should be used for each feed. The child should not be allowed to take a little from each breast. One breast contains, as a rule, sufficient milk for one feed. The infant should be about fifteen minutes over the meal, and should not fall asleep while suckling. After feeding the nipple should always be washed and dried.

The first habit a baby has to learn is regularity in feeding, which is usually every two hours, to begin with. It will soon learn that it cannot be fed when it likes, and will take the breast readily at the right time.

A nursing mother should never take any violent exercise; but after the baby is six weeks old she should take some walking exercise daily. Her food should be simple and nourishing. Rich and highly flavoured things ought to be avoided, as they are likely to upset the baby's stomach. European nurses are very fond of recommending stout or beer to the suckling mothers. It does no good. In fact alcoholic drinks are positively dangerous, both to the mother and the baby, as they cause nervous instability in the mother and alter the quality of the milk. A nursing mother cannot expect to produce good milk if she has to do hard work in the house. The food she takes goes to supply energy for the work, and there is a little over to make good milk. The consequence is that it is poor in fat and often causes indigestion in the infant.

Weaning.—The baby should be weaned at the 9th month and the process must be gradual, the mother's milk being replaced by a mixture of cow's milk and water, and the strength of the mixture must be gradually increased till pure milk is given.

The evils of over-suckling are two:—

1. The child may get Rickets or may waste for want of proper food.

2. The mother becomes weak and anæmic, and is liable to contract consumption or some other similar disease.

Sometimes breast-milk is unsuitable for an infant. There may be two reasons for this:—Firstly, milk may not be sufficient, and, secondly, the milk may be indifferent in quality, usually deficient in fat, with excess of hard curds.

The following the symptoms will generally tell if breast-milk is unsuitable :—

1. The child will cry for about a half to one hour after a feed, which is only temporarily stopped by putting the child again to the breast.

2. The child does not gain, or may even lose in weight.

3. The child shows signs of indigestion, as vomiting or flatulence usually with constipation.

This condition can be rectified by finding out the caüse and removing it. Extra rest may be given to the mother by retiring early at night or by lying down in the afternoon. Artificial feed may be tried Some people think that to mix the milks is injurious. Nothing of the kind. Give breast-milk as much as possible and supplement it with cow's milk properly prepared.

Substitute feeding.—Some women, now-a-days, make the plea of delicacy or general debility an excuse for not nursing their offspring. In most of these cases their health would improve if they followed nature's leading. But there are undoubtedly certain cases where substitute feeding becomes necessary. These cases are :—

1. If breast-milk is of such poor quality and quantity that the child wastes or does not gain weight, or shows signs of indigestion.

2. If the mother suffers from serious ill-health or active disease, as Tuberculosis.

3. If she is suffering from any fever, lasting more than 2 or 3 days.

4. If she has severe breast abscess.

Under such circumstances, if parents can afford, to employ a wet-nurse is the next best thing. But before doing so it is essential that she should be examined by an experienced medical man, as the future of the baby entirely depends upon the wet-nurse's health. She should be of an unblemished reputation and perfectly clean. A married woman, with a family of her own, is perhaps the best, and there should not be difference of more than a month or so between her baby and the one she is about to nurse.

In India wet-nurses generally belong to lower classes and they cannot rise above the dirty traditions of their race. It is very difficult to keep them clean, and they require careful looking after.

Hand-feed.—In giving a substitute for mother's milk it is important to try to copy its composition as closely as possible. It has been found that the nearest approach to human milk is cow's milk, but yet there is considerable difference between the two, and we have to modify the cow's milk, in order to make it suitable for babies. Water, cream and sugar are to be added to it, according to the age, size and weight of the baby, and this requires some experience and is not the work of anybody and everybody.

A baby improperly fed must suffer in health. There is probably no problem that presents such difficulty to the nurse as that of infant feeding, and some sort of training is very essential. At present there is hardly any training and infants are fed in any manner. When they die their death is attributed to providence, but God never meant that children of any parent should die. It is nothing but ignorance which carries so many infants to the grave prematurely.

Milk Depôts.—For hand-feeding cow's milk is the first essential. There must be plenty, pure and free from disease germs. It is wanted both for the mother and the baby ; and as an uncontrolled milk market does not provide, on a sufficient scale, for the provision of clean and prepared milk infant milk depôts have been opened in Germany, France and England, and there is no doubt that these are serving a very useful purpose and are one of the factors in reducing Infantile mortality. Formerly, they were considered as a panacea for all infant ills, but now a greater stress is laid on the education of the mother, as without it the very best milk is apt to go wrong in ignorant hands.

The bottle and the teat must be kept scrupulously clean. Directly the feed is over, everything should be washed and rinsed in *hot* water. The bottle should be tilted and held all the time the child is feeding, so that there is always milk in the teat and the child does not suck in air which gives rise to wind and indigestion. If the whole of the feed is not taken, the remainder ought to be thrown away and on no account saved for the next feed. A boat-shaped bottle is usually the best, and it should open at both ends to make cleansing easy.

Cow's milk agrees with a large proportion of infants, but unfortunately not with all. If a child's stomach is unable to digest diluted cow's milk, a Doctor should be consulted and nothing else given without his instructions. Let it be understood clearly that giving farinaceous foods to young babies is almost as bad as giving them poison, as they cannot digest them. High death-rate, a vast amount of illness, not ending in death but causing trouble and expense, entailing enfeebled health to the child, convulsions and diarrhæa, are all due to improper feeding.

Comforters.—It is the usual thing in these days to see a teat in a child's mouth to stop him from crying. This is not to be recommended, as it is apt to deceive the child and make him imagine that it was fed when he was really starved. There is a constant flow of saliva which, when it goes into the stomach without food, only weakens the digestive powers. It frequently happens that the comforter is dropped on a dirty floor and is picked up and pushed into the child's mouth again. Thrush, a very common disease of children, is caused in this way; and germs of other diseases may also get into the system in the same manner. In addition to these evils, a comforter causes other injuries also:—

1. High palate is due to the constant action of the muscles and pressure of the teat against the roof of the mouth. This leads to defective speech and a small nasal cavity leading in turn to difficulty in nasal breathing. An infant's bones are soft and gristly, and can easily be distorted.

2. The upper jaw, for the same reason, tends to be pushed forward, causing projection of the front teeth in an ugly fashion and a wide bite.

3. The mucous membrane of the back of the throat and nose very often becomes tumid and swollen, the consequences of which are very serious. The child is unable to breathe through the nose, and in breathing through the mouth bronchitis and even consumption are readily caught. Later, it may cause deafness, and consequently stupidity and backwardness during school life.

4. Enlarged tonsils and adenoid growths, so often met with now-a-days, are often due to "comforters and dummies."

Teething time.—A child begins to cut its first teeth when it is about seven months old, and till then a baby should have nothing but milk diluted according to its age. By the time it has four teeth. starchy foods made with milk may be given by degrees. When it is ten months old it may have bread, rice, dhall, fruits, &c., but plenty of milk should still form its principal diet until the first year of life is completed.

When babies are teething they seem liable to suffer from certain ailments, such as Bronchitis, Indigestion or Diarrhæa. They are often irritable and seem to suffer a good deal of pain. Formerly, lancing of the gums was practised, but it is not usual now, and beyond a dose of castor oil nothing is really wanted. Soothing and teething powders contain some preparation of opium and should not be given, as they might prove fatal.

Other factors in an infant's life.—Other factors leading to healthy growth and development of an infant are:—

1. *Exercise.*--Babies need exercise as well as older children. Let them kick about. Occasional crying is also an excellent exercise for them. Young babies should not be taken out at night.

2. *Clothing.*--Babies are extremely liable to chill and should not be exposed to cold draughts. Their body and limbs ought to be kept warm, and the clothing should be light and loose and adapted to the season of the year. If clothes are soiled, they must be changed at once and be washed before being put on again. Nothing is more repulsive than for a baby to have bad smelling clothes.

3. *Cleanliness.*—Babies should be bathed daily from birth, and morning is the best time. The temperature of the bath should be no hotter than can be comfortably borne by the tip of the elbow which is about 90° F.

The bath increases oxidation and tissue changes, and so partly takes the place of exercise in babies.

4. *Fresh air.*—Babies need a great deal of oxygen. Warmth, fresh air and sunlight for a baby are as essential as good food. The room occupied by the baby should be well-aired and well-lighted, and never too small. Cold, dirt, damp, bad-smelling air—all contribute to general debility and infant mortality.

The care of the eyes.—Close attention must be paid to the baby's eyes from birth, as any inflammation might cause blindness, if neglected. In case of swelling of the lids and matter oozing between them, a doctor should at once be consulted.

Ears.—Discharging ears should never be neglected, as the matter, instead of escaping, may penetrate to the brain, causing inflammation of the brain, brain abscess, and death. Discharging ears usually end in deafness, if neglected.

Sitting posture for babies injurious.—Babies should not be put in a sitting posture, as their head is heavy, the bones are soft and the muscles feeble; therefore the head tends to fall forward on the chest, and this may lead to curvature of the spine, weak chest and other troubles.

Signs of a healthy baby.—When a baby is healthy,

1. It takes its food well and sleeps through the night and cries only when disturbed, as during washing or dressing;

2. Its body is well-covered, but not too fat. Rickety babies are usually very fat;

3. It gains in weight regularly.

4. It breathes freely through the nose. A running nose is a sign of some nasal trouble, and a doctor should be consulted;

5. It cuts its first teeth by the end of the 7th month, and the last by the end of two years;

6. The back should not be curved and the baby should be able to sit upright after nine months, walk after 12 months, and talk by the end of two years.

Crying of a baby.—A baby can only express its troubles by crying, and the causes of crying are:—

1. Digestive troubles.

In case of insufficient food, crying ceases after a feed. If the food is unsuitable, the crying usually occurs about half an hour after a feed and in addition to this there is vomiting and constipation as well. If crying be directly after a feed, with vomiting, it might be due to excessive food or to too rapid feeding.

If the baby gains in weight, has no vomiting and the stools are of a good colour and consistence, indigestion is out of the question.

2. In hot weather babies cry on account of thirst. Sips of plain water may be given between the feeds.

3. Babies wake up screaming at night when the teeth are about to come through.

4. Bites like those of vermin sometimes hurt the baby and make it cry. Verminous conditions must be got rid of.

Persistent crying in a baby is a serious matter, and when the cause cannot be found out medical advice should be obtained.

Illness of baby.—A baby is not well—

1. If it loses or does not gain in weight;
2. If it is listless and the skin hot and dry,
3. If it is off its feed, or is fretful and crying;
4. If it has a rash on any part of its body;

5. If it has vomiting, diarrhæa or constipation or passage of slime and blood ;

6. If it has a cough or rapid breathing ;

7. If it has a fit ;

8. If any abnormal swelling appears. Under any of these conditions, a doctor should be sent for at once.

There are two more conditions which point to malnutrition:—

1. *Wasting or atrophy.*—In this there is loss of body fat ; the skin is wrinkled and bones show through the skin. The face has the appearance of a monkey or an old man.

2. *Rickets.*—In this the child is always fat and often above weight. Late dentition is one of the first signs of this condition. Late symptoms are swelling at the end of the bones, prominent ribs, large swollen abdomen, late walking and bent limbs. It is generally due to insufficiency of fat in the food. Cream or cod-liver oil should therefore be given in this condition.

Vaccination.—A baby should always be vaccinated within the first six months of its life as a protection against smallpox. At one time 23 per cent of infants in India used to die of this disease alone, and people not knowing how to prevent this fearful mortality got demoralized and tried to pacify the goddess *Sitala*, by worship and offerings. Formerly people were doubtful of the beneficial results of vaccination, but now the results are so palpable that the majority of them take to it kindly.

The whole subject of infant welfare is so well understood now-a-days that every civilized country recognizes its national importance and pays its best attention to it. The state co-operates with religious and philanthropic agencies. Up to the end of the last century, medical science had nothing to do with the administration of law for children in England, and infantile mortality continued high. Public Health authorities till then were only concerned with sewage, drainage and other sanitary matters, and no doubt good sanitation did check the waste of infant life to some extent. But infantile death-rate has been brought under effective control only from the time medical science and law for children have been working together ; and there is no doubt that the medical element in State affairs will improve infantile environments still more, as time goes along. Every birth is now made known to the medical authorities within 36 hours. Hand-bills containing the most important rules for the feeding and care of infants, expressed very simply and emphatically, are given free to every person who registers a birth. They are also distributed by societies, individuals, midwives and doctors. This distribution spreads a knowledge of sensible methods for the upbringing of children.

Infant consultations are held in every town. These are the places and where advice may be received and where infants are brought periodically to be weighed and examined, so as to ensure that they are making proper progress. A doctor is always in attendance at such centres.

Infant weighing-centres are similar to infant consultation centres, but without a doctor. Here the work is done by qualified nurses, and in case of difficulty the baby is sent to a consultation centre where a doctor can be consulted. The object is to keep an eye on all the infants born, and as mothers cannot go long distances with their babies, small centres in charge of nurses are preferable. At these places mistakes are readily detected and easily prevented ; and thus the healthiest development of the child is promoted.

Home visitors are the next most important persons in this work. They secure regularity of attendance and supplement the teachings of the consultation centres. By their visits they are also in a position to know the sanitary condition of the houses they go to, and any defect or overcrowding which they notice is reported to their medical officer. Thus a tolerably good sanitation is steadily maintained which is a serious factor in infantile environment.

Chapter XVI.

EARLY CHILDHOOD IN INDIA (1—5 YEARS).

After infancy this is the most important part of a child's life from the health point of view, and environmental dangers to children at the ages between 1 to 5 are very great. The relative immunity of the under-one-year-infant passes away and the chances of infection are enormously multiplied. It is therefore at this pre-school age that prevention must begin.

In India the Government has so far not identified itself with the question of child welfare, and children at all ages from birth upwards are left to the will and pleasure of their parents, and they no doubt do their best for them, according to the light they possess. But even in England where the Government has recognized its duty of preserving and strengthening infant life in the interest of the State itself and has, by various legislations taken complete control of infants under one year and of children from school-going age upwards this period of four years has been left entirely under parental control, perhaps under the impression that interference of the State at such early age would undermine parental responsibility.

Education in England being compulsory, a child has to commence his school-life after his 5th birthday, and it is only then that under the existing rules the first opportunity for systematic investigation by the State of the mechanical condition and well being of the bodies of its future citizens is given.

These inspections soon revealed that parasitic diseases of the head and skin, decay of the teeth, defective sight and poor nutrition were very frequent in these children and in some cases damage had been done to the health of the poor child, through the carelessness or ignorance of his parents, which was irreparable. It was also noticed that, had the disease been detected early, it would have been by no means hard to alleviate and might have been prevented altogether by cleanliness and diffusion of elementary knowledge of the mechanism and requirements of the body.

Thus it soon became evident that there was no reason why the State should withhold its care of the child during this pre-school period ; and it was also clear that, alike from the education and health point of view, this period was second in importance only to that which preceded it. The child at this age is like both wax and marble in receiving and retaining the early impressions which reach his body and his mind. It is thus the home that teaches the child more than any other schooling. A child learns before it is three years old whether it shall obey its mother or not ; and before it is five, the bulk of its education is completed, and by seven its character is almost formed. It might sound strange, but we have only to recollect that the greater part of our time at school is spent in doing what we had learnt before we ever thought of school, and that we go there to receive only the finishing touches. It is quite true that those later acquirements bulk most in our own and in our neighbours' eyes, but the foundation of a structure is everything, and no building can last unless the foundation is well and truly laid.

Dr. Drummond's view of a child.—Dr. Drummond in his little work on "The child, his nature and nurture," published in the series of the Temple Primers, writes :—

" The importance of education both for the purpose of imparting instruction and of moulding character is of course well recognized. What is not sufficiently realised is the importance of the early months and years which nature has set apart in order that each generation may start afresh. The past aquirements of the race are not simply transmitted to the infant. They have in large measure to be re-acquired by each individual. There should be far more earnestness in our endeavour to understand the child, the hope of the family and of the nation, and to surround him with every helpful and wholesome influence".

As regards health, the danger of acquiring those grave diseases that lead to premature death and permanent disablement or impairment of function diminishes with each year of the first decade of life, so much so that the child who attains his fifth birthday with a well-nourished body, with no manifestation of rickets, no tuberculosis, and no after-effects of diseases, such as measles or smallpox, may be held to have successfully got over the larger part of the ills that threaten youth. It is therefore the duty of the State towards the child, between the age of infancy and that of school, to secure that education and physical welfare may go hand in hand, neither being allowed to gain at the expense of the other.

Infant Schools.—To fill this serious gap in the susceptible years of early childhood "infant schools" have been started by local authorities in various parts of England during the last five years. These are the places where parents are encouraged to send their children for part of every day, from the age of 2 or 3. Here free movements of the pupils are encouraged, and when nature calls for rest, means of complete rest are provided. There a child has company of others of his own age which above all other factors draws out and expands his faculties; there he learns countless joyful things about size, shape, colour, sound, smell, &c., without knowing that he is learning. They are really organized playing places under skilled management, and they save children from running about the streets and picking up what they can at random. There is so much for children to learn that they should so learn it that the acquisition is readily available for ever after.

These infant schools have also made it possible to hold medical inspection of children from a much earlier age and check children's ailments as soon as they are detected.

Child care in America.—In America, where they understand such questions still better, the Federal Government in 1912 established a Federal Children's Bureau as a permanent statutory authority to carry out a nation-wide study and control of the whole problem of child welfare. On account of this central authority there is no lack of continuity in medical inspection, and there is no gap or overlapping anywhere. A properly planned and complete system of legislation is the only way to have complete control over this, which is one of the most important questions of human life.

Growth and development.—Growth and development are special features of this period, and without healthy growth the individual is unfitted to perform his part in after life. During these few years the body grows and the character is formed. Neither the bodily growth nor mental and moral training can be neglected. Deficiency in one will have its influence on the completeness of the other.

Moral training goes side by side with the mental and physical development. Control of the emotions forms an important element in education. Timidity and despondency are detrimental to the child's interest. "During earliest childhood," says Plato, "the soul of the nursling should be made cheerful and kind, by keeping away from him sorrow and fear and pain by soothing him with the sound of the pipe and with rhythmical movement."

Weight.—A healthy child should weigh about 21 lbs. at the end of his first year.

During the early years of life, whilst growth is progressing, tissue change is rapid and functional activity great. A growing child, therefore, requires its full share of fresh air and of nutriment; and in proportion to its size and body-weight more of these are necessary than for an adult.

Development does not take place simultaneously with equal activity in all directions, but one part of the body or one set of organs advances at a time. At first the child increases in weight and length; when the teeth are coming out the growth is less rapid. In the same manner, the rapid gain of muscular strength is opposed to mental attention, and any mental training at this time is detrimental to the child's strength. Children grow by leaps rather than by regular and even advances. There may be a gain of 2″ in one quarter, and only an inch may be added in the next nine months. But the general tendency is progressive, and if weight is not gained the teeth will be arrested, or if the teeth are bad, growth and strength will be checked. As the child grows, both food and clothing must keep pace with the altering requirements; less frequent sleep and more exercise are required; the occupations are to be made more progessive, and gradually education commences.

With proper attention to hygienic details, the weakly infant may develop into a strong and healthy man and escape the infirmities which afflicted his parents. Without such care, inherited taint may develop into disease, as the growth proceeds. Faulty management or surroundings may cause even a healthy child to grow up into a sickly and useless invalid.

Such being the case, all who have the charge of children should make it their duty to study the requirements for healthy development and see that these are attended to with care.

Environments.—At no period is a child more subject to the influences of its environment than in the pre-school stage, and let us see what they are.

1. *Food.*—This naturally is the most important. Milk is the sole diet of a baby, and the same should form the principal diet of a child up to three years of age. It is unfortunately very difficult to get pure milk, and it is an article very easily adulterated and tampered with. In India, those who can afford keep their own

cows, but in towns it is becoming very expensive and beyond the means of the average man. There is no legislation on the subject. In England the same difficulty has been experienced and the Milk and Dairies Bill, which is now before the Parliament, will, it is hoped, secure a pure, clean and wholesome milk supply for every family. The child must be ensured clean and uninfected milk, otherwise it cannot exist.

As the child grows older the diet becomes similar to that of the adult, but milk should continue to form a substantial part of the meal.

Cocoa is nourishing and may be given to children, but tea and coffee have no food value and should not be given.

All meals should be given at fixed hours, and nothing else between meals. Nature loves regularity.

Pappy food is swallowed quickly; the saliva has no time to mix with it, and the teeth have no work to do. It should, therefore, not be given as a routine practice. It should be seen that the child eats slowly and bites his food. Pickles, uncooked fruits or tinned things, wine, spirits should never be given to children.

2. *Fresh air.*—Open play-places in crowded towns is another essential requisite for the existence of a child. Children want plenty of fresh air. Modern conditions of city life are inimical to childhood, and over-crowding has simply a deadly effect.

3. *Clothing.*—Clothing is another necessity. Children are extremely liable to catch cold and they must be well-protected against exposure to cold; but the clothing should not interfere with healthy growth or with the respiratory and digestive functions. It is to be noted that the framework of young children is delicate and easily moulded by external pressure; tight clothing may cause discomfort or produce permanent deformity. Pressure on any part should, therefore, be avoided. Boots and shoes should fit properly and not cramp the feet. Simple rules to be observed in clothing the children are—

(*a*) Not to have too many clothes.

(*b*) Important parts of the body, such as tops of the lungs, the armpits and the abdomen to be sufficiently covered. The body must be kept warm with light and loose garments.

(*c*) There should be complete freedom of movement of every part of the body.

(*d*) Day clothes to be always changed at night.

(*e*) Damp and wet clothes to be changed at once.

4. *Cleanliness.*—The importance of cleanliness is as great for children as for adults, and the morning bath should never be neglected.

5. *Insanitary surroundings.*—Children are quickly affected by insanitary surroundings, and if there is any bad smell in the house they soon suffer. Bad smell is nature's "Danger signal."

6. *Rest.*—Young children require much rest. They require a sleep in the afternoon as well as at night. All children should be put to bed early at a regular hour: 6 P.M. for a child under 6 years is late enough, and they should never be allowed to sleep without a mosquito curtain in places where mosquitoes abound. These carry malarial fever from one person to another.

Play.—Indian children under 5 years are mostly confined to their homes or play about in the street in front of their houses. Open play-places in populous places hardly exist. At home they have no nurseries. If there happen to be other children in the house, all the children play together in any part of the house. There is no method and there is no attempt to teach the child anything useful. The majority of the children grow just like wild plants. Once they are out of sight of their parents there is no knowing what they may do. Everything is casual. If children catch any disease and die it is their own fault, and if they are spared and live long enough they have nobody to be thankful to! Happy-go-lucky is the order of an Indian home.

In England and other European countries special attention is paid to the children's nurseries. In every house where there are children a play-room is set apart which a child is taught how to keep clean and tidy. He is taught to put away the toys at meal-times and before preparing for bed. When a room is kept clean and neat, the child will grow up to look on tidiness as home-like and consequently prefer it to disorder and dirt.

Choice of toys is also essential, as squinting or short-sightedness often results from playing with toys which try the eyes. Too much stooping or twisting is also bad for the backbone.

Exercise.—Children of civilized nations are taken out in the open air for exercise and allowed to run about. A healthy child does not require any incitement to run about; it is generally more difficult to keep him quiet than to get him to play when he is well. Exercise should be allowed in full measure. With an active tissue change, a large supply of oxygen is necessary which can only be got through fresh air.

No hard and fast rule can be laid down for a child's education during the years which precede the commencement of his school career. His general health and activity are taken as the safest and most reliable guide for this purpose. If all goes well, education and physical welfare should go hand in hand; neither being allowed to gain at the expense of the other. But if anything goes wrong, health has the first consideration; because ground once lost in the physical race can rarely be regained, while if education be retarded, it can soon be made up.

The first books given to children should be picture-books; and when alphabet has to be learned, the letters should be large and clear.

School-going age.—Compulsory age for going to school in England is five years, *i.e.*, a child has to go to school after his fifth birthday. But opinions even now differ on the subject. Some consider it too early and desire it to be raised to seven, as it is in Canada. Others hold that leaving children entirely under parental care is a mistake; the sooner a child is brought under State supervision the better, and that the so-called school attendance should begin at 2 or 3. The question really depends upon what one understands by school. In the old sense which conveys the idea of order, discipline, and mental culture, 5 years undoubtedly is too early; but if we take the word in the modern sense and mean a place where children come under direct medical supervision, where their health is looked after by State agency and where free movements of the pupils are permitted and teaching is on the kindergarten system, a child couldn't do better than spend 2 or 3 hours daily at such a place as soon as he has got his full set of milk-teeth. Up to six years at least, a child's development should be free and unfettered.

System of education recommended.—No mental strain should be put upon him until he has completed six years of his life. Education to children under six should be in the form of play—play organized and directed amidst the best attainable surroundings. If a purpose, direction and incentive is given to the restless and inquisitive mind, this purposeless activity that leads him to all sorts of odd places will soon lead him straight; and this is just what Sir Robert Baden-Powell has done for the English boys by making them scouts. There is a good deal for a boy to learn, and he should learn it in such a manner that the acquisition is readily available for ever after. A child should not be allowed to pick up what he can at random at an age when he is so susceptible and impressionable.

Children's ailments.—Divergence from the essential requirements for healthy growth and development must lead to injurious results in the child, and these may be merely temporary or leave a lasting mark. Irregularities in feeding, for instance, may result in temporary illness, and here the effect follows so closely upon the cause that the connection between the two is readily recognized and perhaps rectified. But the insidious results of continued malnutrition are not so easily traced to their cause, and therefore no alteration in the food and surroundings of the child is made until perhaps when it is too late. The temporary derangements of health are, therefore, warnings which, no matter how trivial they appear, should not be neglected. Attention in time may save the child from premature death.

Teething.—Most of the ailments of children are associated with teething, and this subject should be studied with care.

Too much attention cannot be paid to the teeth of children. All decayed teeth, whether temporary or permanent, need attention. At the end of two years a healthy child should have its full set of milk teeth. Rickets causes their late development, or if they are cut they are badly formed and decay early. Teeth, therefore, give the first indication of this awful disease of childhood.

The chief drawbacks and dangers of decayed teeth are:—

1. Inability to masticate the food, leading to bolting and indigestion.

2. If teeth are septic, the child is being slowly poisoned. Poisoned matter from the gums and teeth passes into the stomach and is absorbed. The child, in consequence, becomes weak and anâêmic, and probably has foul breath and dirty tongue.

3. The microbes enter the system through the cavities in the teeth and cause the glands in the neck to swell, leading to abscess formation and consumption.

4. Early loss of the temporary teeth allows the permanent teeth to push forward into the spaces formed, and thus gives the face an ugly look for life. It is now well-known that one of the

most fruitful sources of disease is the "oral sepsis" and there are several other diseases which are seriously aggravated in their course on account of dental caries.

At one time it was believed that dental diseases were of a hereditary nature and nothing could be done to prevent them. Now, however, we know that such is not the case and that dental diseases are quite preventable.

By far the most important factor in the production of dental caries in children is unsuitability of the diet provided from infancy onwards, and the same error in diet which causes dental caries causes Rickets also. Intelligent parents with the requisite knowledge can therefore bring up their children so that they will have good teeth free from decay. Decayed teeth means a bad start in life. It is fortunate that children in India on the whole have so far good teeth but with new habits, under modern civilization, I am afraid they will not enjoy this boon very long, unless they always bear in mind that too much sugar is deleterious to the teeth, and to keep the mouth clean is the first essential of a healthy life.

In England, where sufficient care of the mouth is not taken, dental diseases are very common; and it is calculated that annually about half a million children commence school life with a crippled state of health on account of bad teeth!

Rickets.—Rickets is another very common disease of early child-hood and is mainly due to bad feeding and foul air. In this there is arrest of growth, the teeth are delayed, the muscles become flabby and the bones stunted and soft. It can be cured if taken early, but once deformities, such as bowed legs, knock knee, &c., develop, the disease becomes incurable without surgical operation.

Convulsions.—Convulsions are very common in young children. It is not a disease, but a symptom of many diseases, such as Rickets, Teething, and nearly all acute illnesses. It is a serious matter and should always be attended to.

Tubercular meningitis.—Tubercular meningitis is an example of the tendency of certain diseased conditions to manifest themselves in the brain in early life. When tubercle affects the adult, it is the lungs which suffer primarily and consumption results; but in children, the nervous system being very delicate, tubercle gets deposited in the membranes of the brain. It is always fatal.

Treatment, therefore, is not so important as attending to the conditions predisposing to Tuberculosis. A consumptive mother, for instance, should not suckle her baby. Children should not sleep with consumptive people in the same room. Children emerging from infectious diseases should be especially taken care of, and if there is infection in the house should be sent elsewhere.

An infant somehow enjoys a sort of immunity from infectious diseases during the first year of its life ; but children after this age are extremely prone to catch infections and the younger the patient the more dangerous these ailments are. First and foremost of these, is smallpox, and during pre-vaccination days 23 per cent of the children used to die of this disease alone. Luckily, vaccination is an effective preventive remedy against this disease, and no child need die on this account now-a-days.

Measles is still very common both in India and in other countries. It is not so fatal as smallpox. Still it does a lot of harm in many cases and leaves very bad after-effects. Delicate children should be carefully looked after.

Chicken-pox is comparatively a harmless disease and is soon over in the course of a week.

In addition to these ailments, which are common amongst children, both in India and in Europe, malarial fever, enlarged spleen, and inflammatory diseases of the eye are most prevalent in India. We all know now that the poison of malaria is conveyed by mosquitoes, and the simplest way to avoid the disease is to avoid mosquitoes by using mosquito-nets.

Malarial fever always leaves its mark behind in the enlargement of spleen, and this renders children very pale and anæmic.

Inflammatory diseases of the eye are mostly due to carelessness and the casual nature of the people. In summer or winter children are allowed to play anywhere and get freely bitten by flies and other insects in the eye.

It is hardly to be expected that a child shall be spared all the illnesses which attack children, however carefully he may be looked after ; but a great deal can be done by strengthening his body to resist disease of all kinds. Successful preventive efforts must be based upon a knowledge of the origin or mode of spread of the disease it is sought to prevent. Where there is hereditary liability to a disease, we may be able to correct the tendency by increasing the resisting power of the constitution by attention to hygienic requirements in early life and during growth and development, and by avoiding the exciting causes of the particular disease. Early detection of the ailment in children is therefore an important matter.

All infectious diseases are, and should be, looked upon as preventable. Attention to hygiene stamps them out.

Squint.—The pre-school age is the period for the development of the visual centres and of the fusion faculty. At this stage any defect in the relative direction of the visual axes is likely first to declare itself. Stereoscopic pictures are excellent for the fusion faculty and a child, as a rule, should not be allowed to read books under six years of age. Squint is generally due to error in refraction brought on by early reading or by unsuitable toys, and it should be attended to as early as possible.

Regular medical inspection of children from birth to school age is, thus, very necessary, and it is the only way to save them from preventable ailments ; and this must run side by side with educational measures for instructing the mothers who, from ignorance, are unable to safeguard their children's health. Training for every profession is an absolute necessity, and motherhood is no exception if good work is to be expected.

Chapter XVII.

SCHOOL LIFE IN INDIA

(*Ages* 6—*and* 10—16).

Although education is not compulsory in India, yet, from time immemorial, it has been the custom that those who desire to educate their children should put them in school after their fifth birthday, *i.e.*, in the beginning of their sixth year; and, curiously enough, the same is the recognized age at which attendance at school becomes compulsory in England. Experience of ages has evidently taught mankind that this is the earliest age at which gregarious instruction can be given to children with any hope of profit commensurate with its cost.

In every civilized country it has been realized that education or cultivation of the mind is the birthright of every child, and, as parents, either through ignorance, carelessness or want of means, may not carry out this important duty efficiently, the State has been held responsible and laws and regulations have been made to this effect. Children are the future citizens of the State and, as by their welfare, physical as well as mental, she has to gain everything, it is nothing but right that they should be under its ultimate protection. This day has not come to India as yet, but events are progressing very rapidly and there is little doubt that, before long, India also will have free and compulsory education. What is good for England must be good for India, too, as the interests of the two countries are now alike and the fate of the one is indissolubly united with that of the other.

As education in India is not compulsory at present, and the system, owing to several links being unmodified according to Indian requirements, the life of the average school boy cannot be said to be what it ought to be from the health point of view. Ignorance of the simple rules of physical development seems to be at the bottom of all this evil. There is a sort of general impression that schools are intended for mental development only and have little to do with the physical side. There is no medical inspection of schoolboys as there is in England and other civilized countries. The boy himself knows nothing. His father has realized the value of education and is exceedingly anxious to see his boy passing every examination as quickly as possible ; and, the earlier he passes, the more credit he gets, and the prouder the father is. There is no check on the boy's work. He can work night after night and nobody will stop him, or point out to him the serious consequences of overwork. The father trusts the Government and considers that, whatever rules the Government has made for his boy's education must be good. The physical condition of the boy does not trouble him in the least. If the child actually gets sick, he sends for his family doctor, or takes him to the hospital ; and with this he considers that his duty in this respect has ended. He is a fatalist to the core. He firmly believes that life and death are in the hands of God. Nobody, to his mind, can die before his time. Disease, to his mind, is a matter of "kismet." How it can be prevented by human measures is beyond his comprehension. If his child gets crippled or deformed, he considers it to be due to his actions in previous existences. He does not know of those who have died prematurely through the neglect of the body ; he only sees those who have survived and are enjoying responsible Government appointments and drawing good salaries. He is anxious to secure one of these for his son also, and if the son die in the attempt or break down, never mind ; it is his bad luck. All children seem to him alike. If his neighbour's son has succeeded there is no reason why his son also should not succeed. Things such as capacity, physical endurance, &c. do not trouble him in the least. Every child is fit for anything and everything to his mind.

The poor mother, being illiterate, has no voice in educational matters. If she were to take pity and stop the boy from what she considers overwork, she would incur the displeasure of the father and, perhaps, of the boy also.

The modern school teacher is, in my opinion, the weakest link in the present educational system of India. His pay is miserably small and, according to modern ideas of civilization, his wants are great. In no other country does a school teacher get such a low salary as he does in India, and the result is that, not only are a good class of people not drawn to this profession ; but even those who do take up this line do so as a temporary measure, in order to qualify themselves for something better. They look upon these appointments as scholarships and become teachers, not because they have any genuine love for the profession, or have the capacity to teach, but because they get a few rupees to keep them going. We all know that to be a scholar is one thing, and to be a successful teacher another. Every graduate is no more fit to become a teacher than every fresh advocate is to become a Judge. Teaching is an art, and unless one puts in sufficient time to acquire this art he cannot do justice to the pupils entrusted to his care; and once he has acquired this art he is no more fit for another profession than, say a medical man is for the law. Life is too short for chops and changes, and if a man becomes efficient in one line during his lifetime, he has done, I should say, very well. Still, the educational authorities tolerate this system and sacrifice efficiency to cheapness. Any graduate is good enough to be appointed a teacher, no matter how long he is going to remain so. Frequent change of teachers they evidently do not mind.

Most of these teacher-graduates prepare for the law during their teachership, and give a minimum of their time to their legitimate duties. They are really law-students and take very little interest in their pupils' welfare. This system might be profitable to the authorities or to the teachers; but it is decidedly detrimental to the pupils' interests. A teacher in name is given to him, but he is no more fit to teach than a tired horse is to drag a cart. His best energies are devoted to legal studies or to something else which is likely to bring him more income in the near future, and he comes to the class mentally tired, very much as a tired horse is taken out for a stroll. The school time is whiled away and the poor boy learns next to nothing. There is, however, a dread of class results over the teacher's head and to get over this difficulty, he gives home lessons at which the boy has to work at home for at least four or five hours daily. The personal attention he receives in the class is very little. The book which a teacher has to get through in the course of a year is roughly divided into so many lessons and, whether pupils are able to follow the class or not, it is no business of the teacher, lessons must continue! otherwise how is the book to be finished? In well-established schools, the teaching is undoubtedly good, but in the majority of schools, both elementary and secondary, the teaching is really of a slipshod nature and very pernicious. There is no public opinion in India, and education being in the hands of Government officials, teachers do whatever they like. In no other department of the Government have I seen members leaving one department and joining another so frequently, as in the educational department.

In England and other civilized countries, teaching is a distinct profession, and people to get into it have to work in the same manner as they do for law or medicine, and once they get in, remain teachers for life. They are persons of ability and suited to the profession, and identify their interest with that of their pupils and know their capacity individually. Most of these teachers belong to religious orders and care very little for mundane affairs. In most of the elementary schools no home work is given : pupils prepare their lessons in the school under the direction of their form teacher ; and once they go home, they are free till next morning. A teacher makes it a point to know everything about his pupils individually, and whatever spare time he has, he devotes to the study of his own profession. His thoughts never wander to other money-earning professions. The school authorities always remain in touch with the parents or guardians and work in harmony. If they find any unusual dulness in the boy, they try to find out its cause and rectify it, instead of scolding him for laziness. Every child, on admission, is carefully examined medically, and an eye always kept on his physical development. In no case is exercise neglected. Sports are not compulsory ; but moral pressure is so great that every boy is bound to take part in some game or other. In fact, it is now a recognised axiom that mental development should never exceed physical development, and where there is any antagonism between the two, mental should give way to physical. The name and fame of a school is inseparable from its playing fields. The human body is just like any other machine and has more chance of remaining in good order, for a longer period, if it is properly looked after.

In ancient India, when education was in the hands of Pandits, and students resided with their teachers, they were under strict supervision. Every *guru* knew everything about his *chelas.* Pandits were lifelong teachers and had no other ambition. Experience had made them thorough in their art and teaching was a part of their religion to them. They had love for the profession and money was no consideration. They had sufficient for their requirements and were contented. They were not married and had no family cares. The subjects they taught were not many ; they had, therefore, abundant time to make their pupils thorough in one subject. There was hardly ever any change in teachers. All education was mostly religious, and the personal influence of the teacher used to go a long way. A grain of example, says the proverb, is worth a ton of precept. A pupil thus brought up was bound to be like his teachers who were men of character and above suspicion in every way. All was well with pupils in those days.

The same system is still followed in the Buddhist monasteries of Burma. A young boy, as soon as he is of school-going age, is sent there and comes under the influence of his religion at once. There, he learns the reading and writing of his own vernacular, the principles of his religion, and arithmetic, later on. There is no multiplicity of subjects, and the young mind is free to grasp one subject thoroughly. Education in these places is free. The monk at the head of the monastery is a well-tried man, with a good name, and respected by the general public. Parents know what kind of teacher he is and can rely on his sympathy and goodwill. The monk, probably, is not an outsider. He may be of the same place and, in that case, his parentage and other antecedents are also known. The result of this excellent system is that young children commence their moral and religious training at the most impressionable period of their life, when things learnt become part and parcel of their character. Their mind is free. Some notion of God is awakened in their mind ; this makes them happy and contented, instead of leaving them morose, listless, and aimless so characteristic of Godless youth.

Under the old Indian system of education, there were no examinations beyond class tests. This saved the boys a lot of the mental strain, which is unavoidable under modern conditions. Moreover, the hours of learning under the old system were more suitable to the country, *i.e.*, three hours in the morning and three hours in the afternoon, leaving the hottest part of the day free for rest and meals.

Present system of education.—Things are entirely different under the present system of education. All over the civilized world great stress is now laid on the variety of subjects, and one is considered as essential as the other. History and geography, for instance, are considered the eyes of education, and without their knowledge education is not considered complete. Mathematics, a child must know, as it is said that nothing sharpens his intellect so much as Mathematics; and of these, either he must know at least Arithmetic, Algebra and Geometry, or none at all. Then languages have their own charm, and a lad is expected to know at least two, besides his own mother-tongue. This is the ideal course which the University of London has prescribed for matriculation in this country (England) and considers it the minimum general training which every lad should acquire by the time he is sixteen years old. From the day a boy joins a school this course is kept in view. Indian Universities and the Department of Public Instruction of the Government of India follow the same course without, unfortunately, rectifying certain evils which are peculiar to India at present.

1. First and foremost of these evils is the slipshod manner in which the health of the youngsters is looked after. No skilled attention is paid to the physical side. Prisons have their medical officers, but schools have none. Any boy, fit or unfit, may be sent to school for mental training; and there is no one to tell him what is good for his health or how it can be preserved. Consumptive and healthy children sit together in the same form and no one minds! Parents are not encouraged to visit the school. In fact, there is hardly any communication between the school authorities and parents. Games and play are optional; and as an Indian is non-sporting by nature, very few take part in them. Hours of study at home are not controlled. There is no one to see how many hours' sleep a boy gets; and whether the home work given to him is not too much. An Indian youth is brought up in surroundings where people are casual s regards their food and dress, and he also acquires the same habits. Nobody cares whether the boy has had anything to eat before he goes to school, and there is nobody to insist on his midday meal. Schools in India, like public courts, begin at 10 A.M. and continue till 4 P.M., with an interval at 1 P.M. for lunch. But there is no one to see whether the boys at this hour actually do eat anything or not. Some of the Indian boys are too poor to spare an anna on a meal and go without it until they return home; others have caste prejudices. For a 10 o'clock school, boys must have breakfast by 9 A.M., the latest. What a strain it is upon the physical powers of a boy to go without a substantial meal for nearly 8 hours can easily be imagined. But this is not all. 9 A.M. is too early for an Indian home to have any decent food freshly cooked. Whatever the poor boy gets at that hour must be

a light meal and, in many cases the chances are that he gets only stale food from what was left over the previous night. In other civilized countries, the dining-hall of a public school is a great institution and many associations attach to its name. A midday meal for school boys, is as a matter of course. India, perhaps, is the only country where school-going boys go without a substantial meal from morning till evening. Eating sweets during the interval only upsets their stomachs. It is, therefore, no wonder if Indian boys look sickly and weakly in comparison with the children of other nations. There is hardly a child in India who does not get malarial fever at least once a year, and yet, very few preventive measures are adopted. Even a simple thing like a mosquito-net is not insisted upon. The child in India is without State supervision and his welfare is entirely left to the sweet will of his parents. Had this been the correct thing to do and had the interests of children been absolutely safe in the hands of their parents, there would have been no occasion for compulsory education, Children's Employment Act, Cruelty to Children Act and hundreds of other measures which every civilized country has adopted on behalf of its children. Parents are only human beings, and it is human nature to look after its own interest before attending to anything else. Indian parents might mean well, but most of them being ignorant of modern methods do unknowingly many things which are detrimental to the interest of their own children, and therefore require correction. Everywhere, except in India, the State has recognized its duty as the ultimate parent, and childrens' rights are jealously guarded. If it is so elsewhere, why not in India?

2. *Medium of Education.*—Another evil is the medium through which education is given to young children. In England, from the highest to the lowest form, whatever is taught is through the medium of English, which is the mother-tongue of the country. In India nothing is taught in the vernacular. In India, a man with a knowledge of English has more chance of making money and earning a better livelihood than one educated in his own vernacular only. The Government is English; all the superior class of work of the country is done in English. There is also a general impression that, as children learn a foreign language much more quickly in their younger days than they do later on, it is better to ram English into their heads from the very first. It is therefore the ambition of everybody to know English as early as possible.

This throws a very severe strain on the child's undeveloped mind and, as he is not able to grasp what he is taught, he is made to commit to memory things which he does not understand. This has led to the system of cramming in Indian schools, and children have ceased to be original. A common complaint against Indian children now-a-days is that they are not original—which is simply due to their not knowing their own vernacular and to their inability to express their ideas in a foreign tongue. This enforced cramming entails very hard work on the boy; and to keep pace with the class he has to neglect his exercise and sleep. Being raw, he does not understand the evil results which follow such neglect, and there is no one to check him. Youth being on his side, he does not feel the evil effects immediately; but sure enough the day of reckoning comes; before long, he loses his mental balance; he becomes listless, morose and unhappy; he finds that the harder he works the less he is able to produce at the time of examination, that his memory is failing, that headache has become his constant companion, that dreams trouble him and he has ceased to enjoy sound sleep; that he is not able to digest his food or has no inclination for it; that he is unable to concentrate his attention, and his mind wanders as soon as he opens his book. These are only the warning signals and, as he is generally heedless of all these, he soon breaks down and his career is finished in premature death. With the right kind of advice at the right time, his life might have been saved and been made useful to the country.

3. *Multiplicity of subjects.*—Multiplicity of the subjects taught to children is another evil I have to complain against. In a country like Europe where the climate is cold and always favourable to work, where work is done in a methodical manner, where public health is well attended to and preventable diseases are kept well under control; where a child's welfare is a public concern; where good teachers and tutors are always available in large numbers; the course of study may be suitable enough and possibly may do no harm to the pupil; but, for India, conditions are so different that the European system of education cannot be held to be beneficial to the country at large, and modification is necessary. There, the climate for the greater part of the year is very enervating and leaves no energy for serious work. Malaria, to say nothing of other preventable diseases, takes the very juice out of every person and renders children unfit for hard work. Children are

under no medical supervision, and their health is purely a matter of chance. Good teachers are few and cannot be had in sufficient number. Good tutors there are hardly any. The father is perhaps busy in earning his own livelihood or is unable to help his child in his studies. The mother as a rule is illiterate. Very little individual attention is paid to him in the class. In these circumstances, the entire mental work of the boy is uphill. With intelligent help and explanations, what he would have learnt in an hour takes him two or three hours to commit to memory. The result is that he soon breaks down and loses interest in his work. School life ceases to be a pleasure to him, and his work becomes more or less an ordeal.

4. *Teachers.*—The present system of recruiting teachers is another evil to be complained against. Everybody knows how unsympathetic the modern teacher is in India, and the reason is not far to seek. He is the least paid Government official. From the educational point of view he is perhaps a graduate and therefore well-qualified; but, either because he has no liking for teaching, or because he sees no brighter prospects in the department, he becomes a teacher as a temporary measure only, and all along he is looking out for something better. He has no heart in the teaching; he is a teacher from mere necessity. In England and other civilized countries local men are selected for local appointments, and changes from one school to another are permitted under special circumstances only. A teacher thus appointed identifies himself with the school and most likely spends his life there. He comes to know every child, and children know him well. He knows everything about his pupils and knows perhaps their parents, too. He mixes with his pupils, and they love and respect him. He is thus naturally sympathetic. Our Indian teacher, perhaps belongs to some far away place. He comes to the place, because he is sent there by the Educational authorities. He hardly knows anybody in the place; he soon becomes home-sick, and whenever he gets an opportunity he visits his country and spends his holidays with his own people. He is thinking all the while how to improve his prospects. He is under the impression that he can do anything and everything, and there is no appointment for which he does not consider himself suited. If nothing else turns up, he devotes his energies to law, and when he passes the examination he bids goodbye to teachership. He is a paid Government official; pupils

are nothing to him; and he does not believe in devoting his spare time to his own profession, either by reading or by improving the art of teaching. He does not intend to remain in the profession; why should he waste his time over it? There is, thus, nothing to induce him to be sympathetic with his pupils. He has to get through certain books in the course of a year, and this he does in a somewhat callous and perfunctory manner.

Indians are noted for imitation. The Indian Educational Service is recruited in England and its members are mostly Europeans, and nearly all the high educational appointments in India are held by them. All the graduates of Indian Universities must pass through their hands, and in doing so, learn to imitate their ways and manners, and when their turn as teachers comes, they adopt the same attitude towards their pupils. These young teachers have, perhaps, never been out of their own country and have not seen how European teachers behave when they are dealing with their own class of children. European teachers go to India not on account of any love for the country or its children, but as a matter of business; and as long as they have discharged their duties to the satisfaction of their superiors, they have no further desire to mix with the people. There is nothing in common between them and their pupils. They knew nobody there before they went to India; and once they retire, they have nothing more to do with that country again. All their friends, relatives and interests are in their own country. After all they are human beings. They may be forgiven if they think too highly of themselves and consider the Indian races inferior. Equality of India means loss of appointments to the Europeans. Why should they have this equality of India at heart? Such, however, cannot be the case with Indian teachers. The future of the country is in their hands, and if they make a little self-sacrifice and throw their heart into teaching, they can do an immense amount of good to their country by moulding the intellectual and moral character of its future citizens. Teachers are examples to their pupils, and if they wish to inspire the young lads with high ideals they must set the example themselves by living with them and for them. The good and welfare of their pupils should be the sole object of their lives.

5. *Lack of sports.*—Another serious evil in the present system of education in India, to my mind, is that it does not insist sufficiently on the boy's taking part in sports and games, the result

of which is, that the physical side of his training is not properly attended to. Mental development, no doubt, is the primary object of school life; but we should not forget that physical growth is active throughout this period, and that neither can be neglected without detriment to the other. Both must progress together, as they mutually influence one another. Even the moral character may be warped by deficiency in physical growth. Weakly children are noted for timidity and fibbing while a sporting child is always straight and courageous. It must be known to the educational authorities that outdoor games are just as essential for the welfare of the children entrusted to their care as mental training is ; yet the means of physical developemnt are not enforced anywhere. Climate, habits and customs have rendered Indian people non-sporting, and parents do not realize the value of sports in the development of a child. Most of them are under the impression that play for children is a waste of time, whereas much attention to his books is looked upon as a virtue in a boy and a sure sign of his future success. They, therefore, either encourage this habit of over-study, or give a sort of silent consent. They are so much afraid of their child hurting himself that they are not keen in inducing him to join any game in which there is any chance of being hurt, and there is hardly any outdoor game which does not carry a certain amount of risk. A rider must risk a fall. The result is that an Indian boy soon becomes timid, and the seed of cowardice is thus sown in him. Mentally, he is too knowing for his age, but, physically, he is not of much use, and this want of balance soon tells upon his nerves and taxes his energies and brain to such an extent that, by the time he reaches the Matriculation or even before this, he becomes absoluetly exhausted and enervated. Games are essential for health, and if health is the best wealth, nothing can be more profitable than games and sports. Moreover, sports are the shortest cut to popularity. Take the case of Prince Ranjit Singh. No prince is more popular in the world to-day than this gentleman, and all this is due to cricket. A sportsman is always popular. The fame of every public school in England is due to its playing-field ; and to take part in games and sports is a matter of honour with every school-boy there (Great Britain, &c.).

6. *Difficult text-books.*—Those who know best about educational affairs condemn the modern text-books also. They are said to be unsuited to the requirements of the Indian boy, as they

are so bulky and difficult that an average child cannot get through them in the course of a year with ordinary application. This is indeed education with a vengeance. It is to be noted that it is not the medicine which cures a patient, but the right dose. The same dose, if given to anybody and everybody might kill thousands. The European standard of education, if local conditions and other environments are not taken into consideration, will only prepare Indian boys for cremation. Difficult text-books, beyond the grasp of the average boy, have led to the use of keys and other modes of cramming which are nowhere more prevalent than in India.

7. *Defect in school hours.*—The school time fixed in India is also unsuited to the country and requires attention. At present every school like a public court, begins at 10 A.M. and children return home by 4 P.M. To be at school at 10, the boy has to take his breakfast at about 9 A.M which can only be a light meal and perhaps not even freshly prepared. He gets no mid-day meal. The schools allow about half an hour for refreshments at 1 P.M., but some boys are too poor to spend any money ; others have caste prejudices. Thus, most of them go without a substantial meal from morning till evening. The strain of mental work and the want of food soon tell upon their system, and they begin to show signs of degeneration from their earliest years. The European climate demands energy, people have no caste prejudices, and the dining-hall in every public school is a great institution. The Indian climate, on the other hand, is enervating during the greater part of the year and heat has a paralysing effect on the system. The morning is the only time when people can work with any comfort. If schools were to begin, say, from 6 in the morning in summer, and 7, in winter, for three hours, and again for 2½ hours in the afternoon after 2 or 3, it will give ample time for the mid-day meal and rest to every school boy and, at least, one cause of break down will disappear.

8. *Religious education.*—Want of religious instruction is another defect in our present system of education ; and, as the policy of the Government is not to interfere in the religious affairs of the people of India, no help can be expected from Government in this respect. Its removal for the present must lie in the hands of the well-wishers of the community. Every religion, except the modern Hindu religion, takes some care of teaching its creed and principles in early childhood, which

is the most receptive period of a child's life, so that he may learn to be proud of what is good and inspiring in his religion and set an ideal before himself as a guide. In modern Hindu households, practically nothing is done towards fostering religious tendencies in early life. In fact, most of them do not know even what their creed is. Orthodox Hinduism is too apt to lead to irreligion. A religion which gives ritual in place of creed, and unintelligible mantras in place of religious instruction, is bound to have such a result. No thoughtful Hindu can believe that any spiritual benefit can accrue to him from feeding Brahmins, or by a bath in a sacred river, or going on a pilgrimage, or worshipping images. The cry is for a religion which will satisfy the spiritual needs; and this can be only a bold monotheism. Some people mix religious instruction with moral instruction. Moral instruction is within the powers of every decent school, but it is not so much a question of precept as of example. The boy becomes what his master is; the new pupil becomes what the old pupils are. Religious instruction is a different matter altogether. It is a matter of creed. Rites and social customs are of no use. Such belief as an orthodox Hindu possesses is shaken to its very foundation by western science. The Brahmin, now-a-days, does nothing, and his influence is slipping away. What is wanted is an instruction in pure theistic religion, which appeals to the heart of every Hindu and infuses enthusiasm into its followers. Every Hindu believes in the teaching of the Vedas, which he reverences deeply. The educated get their minds imbued with Christian ideals; and, unless the personality of God, solidarity of the human race, moral standard, real sportsmanship, chivalrous regard for women, and a sense of honour and truth are inculcated in them by their own religious ideals, they naturally refuse to be bound by the old systems of thought. At present, the majority of Hindu lads know less of their own religion than they do of other religions. They are thus worse off than most Mohamedan and Christian lads. A Hindu boy has scarcely any example of a religious life set before him, and is thus generally ignorant of the best traditions of his race.

In times gone by, when students resided with their teachers for a number of years and education was mostly of a religious nature, there was no question about religious education. But now, since education is imparted after foreign methods, by teachers professing different faiths, the question has become very serious. Every Hindu feels its necessity.

Religion is the backbone of every nation, and no nation can exist without its religious and national ideals. Education, without the religious element, is something like a house without a foundation, and can only end in distorted intellects and immorality. Parents are living examples to their children, and, if they are godly, their children will also become like them. They are, therefore, the first persons that ought to inculcate religious ideals in the minds of their young children. By teaching young boys something of the lives of their holy *rishis*, sages and heroes, they will know something of their own religious men, and will naturally be inspired to nobler and better lives than those of the present day. They will *then* understand what a priceless heritage they have received from their forefathers, and to maintain those traditions will be their first duty.

In every civilized country the greatest stress is laid on national ideals and religious studies. In England the smallest place has its Sunday School, and young children, from their infancy, are encouraged to go there to hear the stories of Christ and what he did. The ideal of Christ and his disciples is held before them, and every endeavour is made to make boys well-behaved, obedient and truthful. As they develop, these elements also develop in them, and when they become men, they are naturally full of hope, patriotism, energy and cheerfulness. They have no gloomy ideas about the future.

What ought to be done.—School education in India does not keep sufficiently in touch with the life and circumstances of the community from which the scholars are recruited. The effective educational treatment of the school-child demands the concentration upon the child of all the health and moral forces available. Home influences are of paramount importance in this education, and when they are actually opposed to school influences, they often prevail. Unfortunately, at present in India, there is too wide a gulf between them. The unity of aim of both parents and teachers demands a greater co-ordination of home and school-life than what exists at present. Parents should render more assistance to the educational authorities in the moulding of the child to its life-work.

Parents who deposit a child in school and leave the rest to the teacher are bad enough if only their negative qualities made them of no account in the moral development of the child, but they are generally a positive evil from the constant presentation of bad object-lessons. They must realize the gravity of their responsibility, and it is to their own advantage to do all that is possible to promote the child's physical, moral and mental well being. A child's future success in life depends more upon its physical fitness and behaviour than upon its knowledge of the subjects of the school syllabus.

The amount of mental work must be in proportion to the capabilities of children, and a child's general health and activity may be taken as the safest and most reliable guide for his education. Whilst growth is active, one cannot have great mental power exercised. Children cannot work for such long hours as adults; nor can they keep their attention on one subject for long at a time. All depressing emotions, if long continued, act injuriously, especially on those who are delicate. More work, therefore, must not be expected of a child than he is capable of doing well; otherwise he is liable to become depressed and unhappy. Indolence must be conquered; of course, where there is a tendency to laziness, but it is harmful to endeavour to get as much work as possible out of a child. A teacher should make it a point to know the mental calibre and home circumstances of his pupils. Teaching should be as simple as possible. Its adaptation to the minds and circumstances of the pupils is much more important than its quantity.

A child's education should be consistent throughout, and whatever he learns to do from the first, he should learn to do in the right way. He should be taught to be obedient, truthful and unselfish. To neglect to teach children discipline is to deny them part of their birthright. If a child be once taught to obey, he will be able to acquire by himself the difficult but necessary habit of self-control.

The co-operation of the home with the school is more particularly necessary for the moral training of the child of which hygienic training is but a form. It is also necessary for the maintenance of the child in the best conditions of discipline, feeding, recreation, and of rest to benefit to the full from school education.

The child can never be regarded, educationally, as a thing apart from its parents and home. By neglecting the circumstances determining the education in the home, the education in the school is warped and stunted, and society is in consequence a serious loser. School conferences with parents should, therefore, be frequently held. Anything which tends to make education more real in the eyes of the masses must be adopted, and the future occupation of children should be discussed freely with parents.

Medical inspection of every child at school is very essential, and it should be performed at least three times during the school life. Parents should be perpetually reminded to seek medical aid when a child is not well. Every child should be carefully examined in order to detect, at the earliest possible moment, the signs of disease, so that the mischief may be remedied without delay.

When children are a bit poorly, they quickly lose their courage. They quickly feel themselves *hors de combat* and do not fail to show it. Fortunately, maternal tenderness is a most valuable asset of our race, and it is found even in the most degraded and unpromising circumstances. Under its spur a mother is quick to detect that a child can do no work at school, and keeps him at home. Her advice in this respect must be respected in all circumstances.

Chapter XVIII.

Habits of school-boys in India as in regard to food, dress exercise, &c. The human body is one of the most wonderful and perfect living machines in this world and requires just as much, if not more, attention and care at the hands of its possessor than any other delicate machine. The greater the care, the longer will it last and produce better work. But, somehow, neglect of food, clothing, exercise and everything else which is likely to give comfort to the body, has become peculiar traits in the Hindu character. Although his religion tells him that proper care of the body is the first duty of a righteous man and its neglect one of the greatest sins, yet there is a general impression among the Hindus that the right place for the soul (Atma) is with its prime source (Pram-Atma), and that, the coming into this world is a punishment for the shortcomings of his previous existences. The average Hindu looks upon the body as the dungeon of the soul, and he endeavours to attain salvation by trying to release the soul as soon as possible. Being a fatalist, he attaches no value to his life and lives up to his conviction such as it is. Life and death, to his mind, come from God, and nothing can happen before its time and nothing beyond what is written in his fate. His vitality is, therefore, very low ; he matures early and dies early. Environments have no force from his point of view.

Children imbibe these impressions at home and become, in their turn, casual and careless. Anything affecting the body is the last thing they care about. Any kind of food which will satisfy the cravings of hunger and at *any time* will do. Chillies and spices are taken in excess to hide the taste. Sweets can be got everywhere and can be eaten anywhere without prejudice to their ideas of caste, and as they are also palatable, they are eaten in great quantities and at all times. They are their sheet-anchor. They also like milk and its preparations, but as the price of these has gone up tremendously and good milk is very difficult to get now-a-days, it is not within the means of every Hindu boy to get milk in sufficient quantity. Want of care in food in childhood is the root-cause of the present low vitality of Hindu lads.

The average Hindu school-going boy, as a rule, does not get a sufficient quantity of food, and its quality also is not very superior. As has been stated before, the schools in India begin at 10 A. M., and, as the Hindu food is not so easy to cook and there is no time for elaborate cooking, the boy, if lucky, gets chapati and dall hurriedly and therefore insufficiently cooked, otherwise, something of what was left overnight is given to him. Being too early, he cannot eat much of this unsavoury food. Some families are so casual that no food of any kind can be got in the morning and boys go to school actually without food, or buy a pice worth of gram on their way. There is no mid-day meal. An interval of half an hour is given at 1 P. M. The child may, or may not, eat anything then. Some simply pass the day by drinking water only. In this semi-starved condition, labour continues till 4 P. M. Then the boy goes home and eats whatever cooked food there is in the house, and this really is the only substantial meal he gets. In well-to-do families the boy may get a glass of milk before going to bed, but such families are few. The majority of the Indian people are poor, and as educational expenses have now tremendously increased, and early marriage generally results in a larger family than one can support, they have to stint themselves in every way to make both ends meet. For the sake of appearance they turn out decently, but, actually, they are in abject poverty, and the children are simply half-starved. With no mental strain, a child can pull on anyhow, but now everybody is anxious to educate his child, and mental strain cannot be avoided. With the mental strain on one side, and the demands of growth on the other, the unfortunate child cannot exist on insufficient food for any length of time. He soon becomes sickly and anæmic and the break-down commences. The ordinary Hindu diet of dal, bread and vegetables with ghee and milk is all that is required from the physical point of view, but it must be well cooked and prepared with less sugar, spices, chillies and acids to admit of more or easier assimilation. A vegeterian diet without milk is bulky, and a child has to eat a large quantity of it to get sufficient nutrition. This bloats him and makes him drowsy. To rectify this, milk and cream in large quantities ought to be taken. Meals ought to be taken at regular hours, and sufficient time allowed for every meal, as children by nature are inclined to eat fast, and badly masticated food always leads to indigestion and dyspepsia. Somebody must see that the child takes his usual food. If he is off his feed, he should not be allowed to work. No work is to be given directly after food, and work in the morning should not begin without taking a cup of milk first. Children should never be allowed to go to school without food. If they are unable to take their meals, they are unfit to do their school work.

It must be borne in mind that proper care in childhood is the first essential of national life, and care of a child means sufficient and wholesome food, to begin with. As far as the ingredients of Hindu dietary are concerned, they have been pronounced complete and suited to the climate by the best doctors of the civilized world. All that is required is care in the preparation of the food and care in its eating. If our present indifference in the matter of food continues, we cannot hope to survive in the competition we are now facing in every walk of life. "Chowka" serves no useful purpose. It alienates people and is therefore detrimental to good feeling. A system of dining together in halls, as is adopted in every civilized country, is very desirable for our school-going children also. In European countries dining is the principal function of the day, and this hour is looked forward to with joy by everybody. Let the same be in India. In no other nation does the kitchen usurp the place of religion as it does in India. Let this "kitchen-religion" be a thing of the past now. Ensure health and comfort to the body, and the body will serve you in time of need. The soul cannot manifest itself without the help of the body and the most direct way to reach one's soul is through the body. Food should be taken, not with indifference, but with pleasure and a sense of duty. An unclean person, an unclean place and unclean clothes should, of course, be avoided; but, granted that everything is clean, there should be no objection to people dining together, if they are of the same standing.

Dress.—Indian boys are equally careless in their dress. There is no uniformity. Some well-to-do boys have taken to the European mode of dress, and they look smart enough; but the majority dress just as they like. It is sometimes very amusing to see so many children in a class dressed in so many different ways. The general Indian way of dressing is to have something to cover the upper part of the body and to have nothing but a dhoti and shoes on the lower part which leaves the legs exposed to the bites of mosquitoes and other insects. Formerly, it was not known that, the bite of a mosquito or a flea could do any serious harm, and that, diseases, such as malarial fevers and plague, could be caused by their bites. In the light of fresh discoveries as to the causation of these diseases it is almost criminal to allow any child to go about without shoes, socks or a covering for his legs.

In cold countries people cover their bodies for the sake of warmth. In India, thanks to the sunny climate, this necessity is not so great ; but deadly insects, whose bites give rise to all sorts of fevers and spread plague from one person to another abound. These bites must be avoided.

Apart from affording protection to the body against these external injuries, and assisting in the maintenance of bodily heat, dress gives the wearer a respectable appearance which stimulates in him self-respect. Nothing goes against the general status of a boy in the school so much as his shabby clothes or his indifference to dress If a boy is well-dressed and his clothes clean, he naturally presents a better appearance and it indicates his cleanly habits. A neatly turned out boy is also a credit to his parents.

Dressing also reflects on the mental state of the boy. We all know that at the time of festivals, when there is joy, people are generally well-dressed and clean-looking, and at the time of grief and sorrow, when the mind is not easy, the grief shows itself in dress first.

In Europe and other civilized countries people are very particular in respect of dress and form an opinion of a new person from his clothes and mode of dressing. Things in India are now judged from the European point of view, and if we desire to have any respect in the eyes of European nations, we must change our system of dressing to suit the changing circumstances, and also to ensure health and comfort to ourselves.

Exercise.—Indifference to exercise is another misfortune of the Indian school-boy. "All work and no play" may be truly said of him. By nature he is non-sporting, and the climate in which he lives does not certainly give him much encouragement to exercise his limbs. There is every temptation in the atmosphere which surrounds him to lapse into habits of inactivity. He sees others riding in carriages or sitting in their houses a great deal, and he, too, is inclined to do the same. All the same, exercise is very essential for the preservation of health, and those who neglect one lose the other also. Exercise is very necessary to enable the body to counteract the baneful effects of educational efforts focussed on the mind, and boys engaged in brain work must recreate themselves with active exercise, which leads to the perfect performance of mental work. The amount of exercise should be regulated according to the age and physical development of the child, but it should be regular and systematic.

Any form of exercise, English or Indian, should be welcomed. As long as the limbs are exercised, it matters little what system is adopted. English games are no doubt costly, but their principle of co-operation is very good, while partnership in Indian games is rare and the spirit of give-and-take and devotion to the common cause is frequently absent. If expense is an object, walking is just as good an exercise as any other. It costs nothing. It can be taken at any time and requires no partner.

Apart from health, games have a social side also. Nowhere do boys of different nationalities meet on a more friendly footing than on a cricket or football ground, and nobody wins popularity more quickly than a sporting boy.

Some boys are under the impression that neglect of exercise for a few days, just before the examination, is not likely to do any harm and, most of them, I dare say, have realized their mistake by not being able to pass their examinations. No horse can work the whole day without rest and recreation, and the same is the case with the human mind. A boy who devotes sufficient time to exercise and sleep is really better off than the one who neglects either of them and reads the whole day. A tired mind receives no impression, and labour is all wasted. Indifference in the matter of exercise should, therefore, never be permitted.

Manner of living.—The manner of living of a school-boy is also objectionable and requires improvement. Lack of method is characteristic of most of our school-boys. At present "anything will do" is the happy-go-lucky way of an Indian boy. There is no such thing as "time for everything" and "everything in time." Whatever is done, is done on the spur of the moment and without forethought. Everything is taken as it comes. There are very few who work in a methodical manner. Sometimes a school-boy will spend a month over the marriage ceremony of one of his relatives and just before the examination, to make up for lost time, he will work day and night. He will miss class lessons on the flimsiest pretext and will then make up the deficiency by copying notes from a class mate. Most of the boys have a time-table, but very few act up to it. Their work is by fits and starts. This irregular method of working costs them a lot of time and trouble. One absence from the class means one link lost and, as when they go to school again, they cannot follow the lesson, attendance at class becomes a waste of time. Their leisure hours they while away frivolously, but when they are pressed for time they try to study for 16 and 17 hours a day, neglecting food, exercise and sleep! It is, therefore, no wonder that they soon break down.

In England and other civilized countries, great stress is laid on method, and no pains are spared in teaching a child methodical habits. The principle of "time for everything" is impressed upon every child from infancy.

Without method a child is not in a position to know how quickly and easily he can get through his day's work. It is, therefore, the duty of every teacher and parent to teach children methodical and orderly habits. Nature loves order and regularity.

Chapter XIX.

COLLEGE LIFE IN INDIA.

It is said that coming events cast their shadows before, and so the life of an Indian youth at college can easily be surmised from what has been already said about the life at school. We all know that habits are formed at an early age and that later on they become second nature. Whatever habits a young man has formed as regards his mode of life, food, exercise, recreation, hours of study, &c., in his school days, he carries with him when he goes out to attend college. Mentally he is clever, knows and understands things much better than the average English boy; he is respectful, persevering and hardworking in his own fashion ; but, physically, he is not up to much. There is perhaps very little cheerfulness in him. The average Indian youth takes life too seriously and, somehow, has gloomy ideas about the future. Formerly boys used to be married at the age of 7, 8 or 9. *Now*, a happy change has come, and this evil day (from the student's point of view) is postponed till the age of 15 or 16, or until he has passed his matriculation. This may be still too early from the student's point of view, but parents have their own reasons for having their boys married at this age.

Colleges in India are situated in large towns with a huge mixed population where temptations of all sorts exist. A boy for the college course has to go to one of these great centres of education. Being away from his parent's immediate supervision, he might fall a victim to one of these temptations.

A son is a religious necessity in order that a Hindu may attain salvation. Parents are anxious to secure this boon for their sons as soon as they attain manhood.

Marriage for girls is universal in India, and 98 per cent of these get married before the age of 15. The parents of the bride select a bridegroom of much about the same age. If the boy remain unmarried until he passes all his examinations, parents argue that they will not be able to secure for him a girl of good family, as no one wishes to give a girl of 15 to a man of five and twenty.

In all these arguments it will be noticed that the boy's studies and future prospects have no consideration. If his education suffer, let it: if, by burning the candle at both ends the boy breaks down, never mind; the future is left to take care of itself. Married, the boy must be, and there are very few boys who do not marry during their school or college career. A College course, therefore, has more than usual difficulties for an Indian boy. Love affairs naturally distract his attention from his books. He is unable to put the same quantity and quality of steam into his work as he could have done during his pre-marriage days. He runs backwards and forwards between his home and his college on every pretext during the holidays, and his studies naturally suffer. He perhaps fails when he goes up for the First Arts examination, and in the meanwhile he has perhaps got a baby at home. An Indian youth is, as a rule, highly sensitive and emotional. Without going into the causes of his failure, he grumbles at his non-success and feels disgusted with his bad luck. His wife, too, is perhaps not very happy at home, and constantly complains of the treatment she receives at the hands of her mother-in-law. This imaginary or real ill-treatment of the wife at home and failure in the examination make the youth decide to leave the college and try to earn his livelihood by becoming a clerk in some office. If he does so, his college career ends, and the struggle for existence commences. Lack of means and increase of expenses soon create unhappiness in the house and lead to quarrels and early break-down.

Parents, strange to say, are not in the least upset at this unexpected result. The boy, to their mind, is sufficiently educated, he is married and has a child. These are all the qualifications they want. As for employment, they say it is a matter of luck. Let him earn Rs. 25, a month, at present; if it is his good luck, he may still rise to a Deputy Collectorship, or become a Naib-Tehsildar.

If the youth is a lad of strong will he persists in his studies against all these odds and carries his determination through, and after one or two attempts passes his B. A. examination and thus finishes his college career successfully. All the same, this divided attention has left its mark on his health. There are indeed very few married graduates who have a cheerful look or are in the enjoyment of sound health. Most of them wreck their health during their college career, and those who are in a position to know say that, over 50 per cent of the Indian graduates fall victims to Tuberculosis to say nothing of Dyspepsia, Indigestion and Eye troubles which are so common in our educated young men.

Family affairs, with which a student should have no concern, and frequent visits to his home, take up a great deal of the time of an Indian student, and to make up this loss he over-works before examination time and neglects food, exercise and sleep. The average college boy belongs to a poor family and his food, at the best of times, is not up to much. Irregularity and indifference in the supply, and excessive demand on the energy, must upset the equilibrium and lead to disastrous results.

Food.—Most of the Hindu college-students are strict vegetarians, and the current of vegetarianism in India is so strong, that even those who have no caste scruples about meat avoid it, so as not to wound the feelings of their brother-students. College-students, being mostly from other towns, live in hostels and food service in their case is more regular. They have two meals a day, one at 9 A.M. before going to the college, and another in the evening at about 5 P.M. There is no mid-day meal, and they eat very little at lunch time. As at school, so at college, their indifference to food continues. Sometimes they join in a game after college hours without eating anything, and will do without food until they return to their hostel or home. The modern College-student has not the same caste scruples as his predecessor of twenty years ago; but his habit of indifference continues and the question of supply and demand never strikes him.

Clothing.—In matters of clothing, a college boy now-a-days, is decidedly better dressed than his predecessor, but at home his habits of indifference continue. In spite of all he knows now-a-days, he has his bath in the open, in the coldest season of the year, and sits down to his food with only a thin dhoti on. It is so easy to catch a cold and so difficult to get rid of it that, through this unwise custom, the cold becomes chronic and undermines the system, leading to consumption. The knowledge that mosquito bites cause malarial fever and that rat-flea bites cause plague is fairly common among college-students, yet very few care to put the knowledge to a practical test by avoiding their bites. They have many nice articles of bedding, but there is hardly a student who refuses to sleep without a mosquito-net. In fact, so great is the force of custom that if one happens to have a mosquito-curtain the others chaff him and call him by "bara sahib," &c. An educated man is in the position of a "guide, philosopher and friend" to his people, and by virtue of the education and knowledge our young men possess, they might have removed the ignorance and prejudice of their own people if they had cared to make practical use of their knowledge; but such is not the case. Even the superintendents of these hostels are indifferent to bodily comforts and look upon them as matters of secondary or no importance. In other civilized countries the managing authorities show great concern for the comfort and well-being of persons entrusted to their care, and whatever light medical science has thrown on the subject is put into practical use for the welfare of their protégés. India is the only place where students are left to take care of themselves.

Exercise.—The more advanced an Indian student becomes, the more he is inclined to neglect bodily exercise, under the excuse that he has no time. The Indian climate, too, is relaxing and gives no encouragement for exercise. The paralysing effect of heat has, I believe, rendered the people, on the whole, non-sporting. There is therefore, very little tendency in the people towards physical exercise. Nobody relishes it, and all try to avoid using their limbs as much as possible.

Neglect of food or sleep shows its effects upon the person very soon, but it takes some time before a young student actually feels the evil results of indifference to exercise. Warning signals, such as headache, costiveness, unsound sleep, and disinclination for food, he takes no notice of; it is only when his memory begins to fail and he cannot concentrate his attention that he is roused.

Exercise is essential for everybody, and more so for a mental worker. The brain, like other organs, requires rest. After exercise the mind becomes more receptive, and what a student would otherwise learn in three hours, he would master in an hour after sufficient exercise. It is not rest in bed which is required, but a brisk active walk or some other form of bodily exercise after the English or Indian fashion.

Recreation.—An Indian youth hardly knows of any other recreation than gossiping or, at most, light reading. He has no hobby. Singing, music, concerts, photography, excursions, gardening, &c., are unknown to him. Social intercourse is very poor. There is no club life. Cards he plays. A student may visit another or half a dozen students may go out for a walk together and talk of different things. Beyond this there is hardly anything more. This leads to individualism, which is so characteristic of our Indian youth and which makes them over-studious.

Hours of study.—As has already been stated there is no method with our students. Their study is by fits and starts. At times they put in 15 or 16 hours' work daily, especially when examination time is approaching; at others, they neglect even lectures and waste their time in domestic affairs and other frivolous pursuits. They make no use of their vacation and holiday times. No student in the world works harder and has a greater power of perseverance than the Indian boy; but, simply because there is no method in his work, he is always pressed for time. There is always bustle, confusion, and want of forethought in his endeavours.

In England, on account of several centuries of peace and prosperity, most of the colleges and Universities are old and well-established and have their own traditions. Those who join them have to maintain those traditions and good name. An Oxford man, a Cambridge man are magic words, and convey a world of unknown delight. The moment a student joins one of the colleges of these Universities he takes pride in his college. Every boy has a college badge and a particular gown. Every college building has its own dining-hall, chapel, library and recreation ground. The name and fame of the college are connected with its playing-fields. The names of old boys who have distinguished themselves in after-life are the most precious possession of the college, and are engraved on the four walls of the dining-hall in perpetual memory. All the students dine together in the common hall and the professors also join them. Dinner is the festival of the day. Boys of each year have their own tables and thus come to know one another more intimately. What strikes an outsider at these colleges is the method. Everything is in time and there is time for everything. The hall is well-decorated with pictures and photographs of the college-founders hung all round the walls. The dinner hour is the time when the light side of life is not forgotten. Jests and jokes are hurled at one another, and young students learn more in the dining-hall than they do in the class room. Each college is a sort of family. Studies, recreation and friendship are all cemented together, and their memories are cherished by every member in after-life. Afternoon teas are in great fashion, and not only does one student invite another, but Professors also invite boys to their homes and introduce them to their wives.

There are three aspects of University life in England, *i.e.*, moral, physical and intellectual; and all these are attended to with care. Oxford and Cambridge are known as the premier Universities of England, and one of them may be taken as an example to illustrate college life there.

The moral aspect of life is left in the hands of teachers, who are considered as living authorities and examples to their pupils. They take every opportunity of mixing with their pupils, old and new, and impress by their example upon the young mind what is right. Those who live outside the colleges are watched by lodging house owners and, if anything wrong be found, a report is made to the University authorities. Most of the landladies are sympathetic and take a motherly interest in the young men. The boys are expected to keep the required number of terms in a quiet and gentleman like manner, and, as a rule, they are bright and cheerful.

The body is looked upon as the outward and visible expression of the soul and the utmost attention is paid to the physical aspect of life. In fact, sporting might be said to have become their hobby now-a-days. Everybody who joins the University goes down to the river first. He is tried in a boat before he is permitted to indulge in other pastimes. A rowing man is, as a rule, a very earnest man and takes life very seriously. Some boys dedicate themselves to this service whole-heartedly. Day after day, in sunshine, rain, or snow or hail or blizzard or whatever the weather be, they are always on the spot. To get the Blue for rowing is a great honour. Others have a craze for other sports. As in old in times Olympic games, so cricket and football are almost a matter of religion to them. 9 out of 10 undergraduates may be said to be active athletes. Still they do not neglect their studies in their pursuit of sport. Plato says: "I do not live to play, but play in order that I may live and return with greater zest to the labour of life" The same principles govern at Oxford and Cambridge. The average undergraduate is never content to look on at games, and so long as Oxonions and Cantabs continue to emulate Plato, so long will sport continue to have a manifest effect on their lives and characters.

The list of University sportsmen who have been killed at the front during the present war bears testimony to the patriotism and bravery of these men.

Boys, who are good at book work and nothing else, are never popular ; for, although they may take part in games as a matter of moral compulsion, they never do well at them. They acquire a hermit-like temperament. Mentally energetic, these boys are, as a rule, shy, as if ashamed of themselves. They never have a word to say for themselves. Such boys are, however, rare and their social circle is very exclusive.

The intellectual aspect of life includes the academic and the social. It is here that a poor boy feels the difficulty, if he is not a sportsman. Such boys, not knowing any one socially, feel out of their element when they sit down with those who belong to a higher social standing. They miss the social training, and consequently do not receive any of the broadening effect that the university has for those persons who are well off. They naturally become dissatisfied with life and, when they return to worldly life, become socialists.

The object of academic life is not only to train the mind, but to give force and a factor in national life. Endeavour is made to develop character and personality, by which young men learn to influence the people. A tutor is a *sine quâ non* in these universities, and a very useful person he is. A pupil writes and prepares his work. He is then catechised orally by his tutor. This system is much preferred to the system of general lectures in some universities. One learns more quickly with a tutor than without.

It is not to be understood that everybody is active and energetic at these universities, and that the moment a young man joins one of them he shakes off his indolent habits. Far from it. A slacker may be found everywhere, and for such a person, too, university life is ideal. Away from parental home and supervision, he need not do anything but satisfy his primeval instincts of eating, drinking, and sleeping. Such men are most charming table companions, bright and amusing in their conversation, they possess a keen sense of humour, and are all round delightful companions ; but they are no good to their college, university or themselves.

Needless to say that, every college has its own club ; and students are encouraged to hold their own concerts, to sing and to play music. Every student is encouraged to excel in some thing which becomes his hobby in after-life and is a source of amusement to himself as well as to others. Every boy is taught swimming. The Summer vacation is utilized for physical training.

Chapter XX.

DISEASES PECULIAR TO STUDENTS.

Diseases peculiar to students.—There is no such thing as forgiveness in nature. Knowingly or unknowingly, as one sows, so one reaps, and an Indian student is no exception to the rule. Apart from diseases such as malaria, plague and cholera, which are due to the defective sanitation of the country and affect everybody, our students are especially prone to Indigestion, Dyspepsia, and Consumption, and the reason is evident. Our young men are indifferent to the needs of the body and it soon gets out of order. Indigestion and Dyspepsia are directly due to over-work, carelessness in food, and lack of exercise. In these circumstances the liver is the first organ which refuses to act properly, and its first indication is the state of costiveness. When the bowels do not move regularly, toxin gases accumulate in the system and give rise to headache, bad sleep, want of appetite and lassitude. The boy then becomes anæmic and begins to lose strength. This undermines the system and prepares the soil for the seed of Consumption.

At one time it was thought that Consumption was due to heredity and was a disease peculiar to cold countries. But recent observations have shown that Consumption is just as common in India as it is in any part of the world. As it is the premier disease of adolescence and the mortal enemy of our young men, it requires special consideration.

Tuberculosis.—Twenty years ago Consumption or Tuberculosis was not sufficiently understood, and no serious attention was paid to it. Advances made in the domain of this disease during the past quarter of a century have been so great, that there is no more vague surmise as to its causation. The exact nature of the disease, its essential character, its universality, its ways and means of propagation and its preventibility, when efficiently handled on scientific lines, are all well-understood, and Pulmonary Tuberculosis in England has now become a notifiable disease and is called "white plague."

The disease is not due to heredity, but to a specific organism which obtains a footing within the body and proliferates. The hope does not lie so much in the treatment of the case as in the handling of the disease as an endemic blight, dependent on conditions of domestic and occupational environments which can, and must, be corrected. With this object in view, they have now in London alone, 18 anti-tuberculous dispensaries. Besides these, there are sanatoria for early cases, hospitals for advanced cases, and Tuberculous schools for consumptive children, so as to isolate them from healthy ones. The patient's home, his household, and his environment are all visited and every member of the household examined, so as to tap the "vicious stream" at its source. Formerly, as the disease was not notifiable, no information could be got and nobody had any idea as to the mischief this one disease was doing. It is only now, after notification, that the true facts of the case have come to light, and it is known that Tuberculosis is of infinitely greater frequency in childhood than has hitherto been supposed. In England, 33 per cent. of school children show the disease in its seedling stage, and 60 per cent of the adult population, it is said, have been infected. The Registrar-General of England's 65th annual report shows that 2 per 1000 annually die from all forms of Tuberculosis, and, for every one death, ten might be put down as infected cases. This gives some idea of the prevalence of the disease, in spite of modern sanitation.

The same report points out that Tuberculosis under 5 years is very common ; then up to 15 years it declines ; after 15, it begins to increase again, and after 55 it declines again. Tuberculosis in the form of phthisis after 15 is, therefore, very common.

To control a malady it is necessary to have a clear idea of its nature. The ancient conception was that humours of the body were disturbed ; but it has now been ascertained that certain microbes are responsible for it. This infection passes from man to man, and from parent to child. There is Tubercle Bacillus in the sputum and there are certain debilitating influences which predispose to the disease. There is less money and less food for an infected man, as he is unable to work, or, if he does, he seeks an easier and therefore more ill-paid occupation. Cheap food, bad air, ill-ventilated houses, over-crowding and sexual excesses are the influences which fan the disease as wind refreshes a forest fire. Patients left at home are uncared for, and around these the disease is constantly working. When a man goes into hospital the mischief is already done and there is not much chance of his recovery. The forces of the disease still continue working in the vicious circle of the infected house in which the most helpless are sucked under as in a vortex. That circle must be broken, and this can only be done by letting the fresh air and sunlight into dwelling houses and removing the over-crowding. The Sanatorium system, which is now in vogue in Europe and America, has revolutionized the whole treatment of Tuberculosis, and this is the axis around which all other agencies for prevention and treatment now turn. Qualified health visitors are appointed to find out cases for early treatment, and also to try to procure healthy homes for the unfortunate sufferers. The ignorance and prejudice of the people have to be overcome everywhere, and for this, physicians and nurses have to win their confidence ; this requires a great deal of tact and judgment. The success of this, of course, entirely depends upon personal factors.

In Europe and America, where human nature is well-understood, people have come to the conclusion that things concerning public safety cannot be left to individual care ; and laws and regulations have been made accordingly. In 1911-12 the American legislature passed laws that all towns with a population of 10,000 and over must have hospitals for their advanced cases of Tuberculosis, and dispensaries to detect early cases in their poor districts. Day camps and night camps are now organized to give plenty of fresh air to persons in the incipient stage ; special hospitals are established for more serious cases and a large dispensary is opened with a corps of nurses who keep close watch upon families and report suspicious cases to the physician in charge.

When, with all these laws and regulations, and the care and attention bestowed upon infected persons, such is the prevalence of Tuberculosis among the most civilized nations of the world, the state of poor India can better be imagined than described. Tuberculosis is not a notifiable disease in India. There are no Tubercular dispensaries anywhere to detect early cases. There is a huge force of police to detect crime, but not a single person to watch the progress of this mortal enemy of mankind. Turberculous cases walk about among, and mix with, others freely ; nobody takes notice. They spit anywhere and everywhere ; nobody stops them from doing so. The stream of infection flows through the highways and byways of our cities ; no one seems to mind this. Houses, generations old, exist, the lower parts of which the sun and light have never pierced. Poverty is so great that the poorer classes hardly get one meal a day, and are huddled together in small ill-ventilated houses like packed sardines, and there is no law to prevent this. There is hardly a house in India where a case of Tuberculosis does not exist, in one stage or another, or in which a death from this disease has not taken place; but disinfection or isolation is seldom heard of. In these circumstances, it is no wonder if Tuberculosis plays such havoc among our young men. Infection is probably contracted in early infancy; but after 15, when severe mental strain is thrown on the system and the lad indulges in sexual excesses, the vitality is lowered and consumption manifests itself. Those who are in a position to know are of opinion that more than fifty per cent of our college students are potentially Tuberculous! and die of this disease, sooner or later.

In India, consumption very often goes hand in hand with Malaria. The tropical heat and dust must aggravate symptoms, and help the disease to take a rapid course. The social customs of the people such as early marriage, insanitation, over crowding, general poverty and the consumption of adulterated and artificial foods are, no doubt, some of the factors that predispose the soil. But behind all these physical causes, stand mental strain and anxiety so peculiar to our Indian students. The advance of Western civilization has unsettled every thing in India—mental, moral, social and spiritual; and in the case of our youths this mental strain has intensified the physical causes of insufficiency, and increased the impairment of healthy metabolism and nutrition.

Chapter XXI.

THE EDUCATED INDIAN.

It must be a source of great relief to a young man's mind, when he finds himself at the end of the goal which he had been aiming at for so many years, and let us hope that he has gone through the ordeal successfully and is now a graduate of one of our Indian universities. But he soon finds to his dismay that the mental strain he has gone through is nothing to what awaits him. The average graduate in India generally belongs to a poor family ; and has soon to find ways and means of earning his livelihood. Some who have the means to do so, proceed to foreign countries for further studies or take up law, medicine, or engineering, according to their mental aptitude ; but the majority find themselves unable to proceed further and are face to face with the battle of life ; and let us see how far their education has prepared them for the struggle.

The average Indian graduate is, by nature steady, quiet, industrious and respectful. He is not given to the vices of smoking or drinking. The climate of his country has endowed him with the three well-known Indian characteristics, *i.e.*, rapid intuition in knowledge ; exuberance of feelings in æsthetics ; and spasmodic effort, early and earnestly begun, but soon left from sheer exhaustion, due to the influence of a hot climate—the low " fatigue point" of Oriental races. He is above certain caste prejudices ; but, taken all round, he is still tied down by certain social customs and traditions. Early marriage is still observed in the family, and most likely he himself is married or is a widower and has one or two children. He is sensitive of his dignity and considers himself above all manual work. The chances are that he is a member of a joint family ; the ladies of the house observe the pardah system and are illiterate or very nearly so. His home, therefore, is not a very intellectual place to be in and, as club life in India is, at present, in its infant stage, the social circle of our young man where he could meet people of equal intelligence is either absent or very limited. In matters of food he is very indifferent and is guided entirely by social customs.

He is amazingly ignorant of hygiene and of the influence of environments on his health. The enervating climate of India has made him non-sporting by nature. With one excuse or another he has always shirked the use of his limbs in his student days; now, having no subscriptions to pay, and not having the moral pressure of college life, he takes no share in sports or games and leads an ideally indolent life. He might go out for a little walk occasionally; but, beyond this, he takes nothing in the shape of physical exercise. Sedentary habits and eating too much of sweets and starchy food, cooked in ghee and oily substances, soon make him fat and heavy and still less disposed to exercise. He, thus, soon loses the elasticity of frame, so characteristic of a budding youth, and begins to look ugly and fat. He lives in the house built by his forefathers generations ago, without any attempt to have it thoroughly cleaned and whitewashed at least once a year, and keeps doors and windows closed during the cold weather. House rats are his constant companions. Plan or method of working, he never had nor has he now. Morals he understands, but religious instruction he never had, and perhaps he knows less of his own religion than that of other nations. The fact that poverty, domestic difficulties and care of wife and children did not deter him from his resolution, shows that he is a lad of some perseverance.

The education he has received has hardly any interesting features about it. It was more a feat of training the memory than of eliciting his intellectual capacities. A lot of useful facts have been crammed into the young man's brain, but no attempt was made to develop his powers of observation, reasoning, imagination, alertness and thought. It had for its object the great goal of passing certain tests fixed by the university, as if the mere passing of examinations was the *summum bonum* of his earthly existence and there was nothing beyond it. This system of cramming has rendered our young men unfit for sustained intellectual work of a high order. They have ceased to be original, and, in the time of need, they have no self-reliance. The aim is to get through the examination somehow, and for this purpose all sorts of ready-made notes and keys which the boys learn by heart are provided.

The greatest drawback of an educated Indian is his poverty, and his established mode of living is such that he cannot make both ends meet. Early marriage brings in early increase in the family, without a proportionate increase of means of subsistence. When a graduate leaves college, he has his own family. His parents are perhaps in straitened circumstances. He has spent a sufficiently long time on his education and he cannot expect his parents to look after his family any longer. He must now get employed somewhere, in order that he may be able to render pecuniary assistance to his parents. The poor man cannot afford to wait; and as he is in a hurry and anxious to earn whatever he can, he finds that the market in all branches is over-stocked and he is disappointed when he does not succeed as well as he had at first anticipated. He does not get sufficient remuneration for what he has already sacrified in time and money. Education, to his mind, was only a means to an end, and he feels sorely disappointed when he finds that the maximum of his time has been spent with a minimum of good results. This makes him down-hearted and has a most depressing effect upon his mind. He soon loses cheerfulness and buoyancy of temper and becomes gloomy about the future. His modern mode of living, the prices of daily articles of necessity, the expenses of school education and taste for cheap imported articles of luxury in all classes of people, have all increased his expenses, but the avenues of employment he finds fearfully contracted. He finds competition very keen at every stage of life. He means well and works very hard. Still he feels the pinch. He does not know what more to do. He finds that the education he has received gives him no consolation beyond reading and writing. He holds no ideals to guide him or give him a message of hope.

Man, by nature, is individualistic, and it is only by acquiring high ideals and a spirit of devotion and self-sacrifice that he begins to love his fellow-beings. But so little has modern education touched this spiritual side that strong individualism is the marked tendency of our present educated society. Very few of our educated young men care to keep themselves in touch with their less educated fellows. Most of them find no time for anything, except what brings them their daily bread. Others have no inclination to do anything that does not concern this world. Very few of these show the courage of their convictions, and their moral conscience appears to have become so dulled that most of them are tempted to a compromising attitude, even at the cost of truth and conviction. The less educated set them a better example in this respect. They show less of gloom, more cheerfulness of temper and peace of mind, a greater desire to benefit their fellow-creatures, and more liberality in employing their wealth in works of public utility than those who have received an up-to-date education. Very few Dharmsalas, temples, ghats, &c., are built by our men of education and means, and generous gifts, for charitable purposes from these gentlemen, are rare.

The habits, good or bad, formed during school and college days, are now more or less of a permanent nature and cannot be easily shaken off. The only difference between an Indian student and an educated Indian is that the educated Indian has now ceased to study and is after the pursuit of wealth. His indifference to method, food, exercise and other environments continues just the same. Once in business or in official life, he rarely reads anything beyond perhaps the daily paper. He considers that his reading days are over. He does not believe in continuing studious habits. He excels in nothing; he has no hobby; he makes no attempt at striking out a new line, as he has no power of originality. Recreation he has none, except perhaps playing with his own children. Music and singing are foreign to his taste: Monotony was the besetting sin of his student life and the same exists now. He passes his spare time in gossiping because time has to be passed somehow, without any knowledge of how he does it. If he gets sufficient for his maintenance, he seldom thinks of utilizing his spare time in other useful matters. He observes no regularity in the performance of his duties. All work and no play is his motto. He seldom takes any physical exercise, devotes his entire time to work, and leads a life of endless drudgery, until he passes away to join the majority at the time just as he is beginning to be useful to his family and country. With all his high intellectual attainments, he has no proper conception of rest or a holiday, after a long strain of hard mental work. He goes on plodding at the office like a jaded animal until a sharp and severe attack of illness knocks him over all of a sudden in the midst of his labours. The average European, as soon as he finds himself run down in health, will not wait for a moment, no matter how important or lucrative his position may be, he takes leave to avail himself of the much needed rest and treatment at once. He does not think of waiting until he is driven to that pass by a combination of adverse circumstances. Holiday, after a long mental strain, is a precept which he has learnt to value, and by actual experience he has found that it pays him better in the long run. Rest, following work is the inexorable law of nature which we cannot violate with impunity. It is no use when too late. But rest does not mean idleness. Manual work and physical exercise are the kind of rest required by brain workers.

This ignorance of personal hygiene is, in my opinion, the most serious defect in our national character. No nation can rise or even hold its own by any means other than living the life that constitutes national honour and leads to national prosperity; and this, as well as the national morale, depends upon the physical standard of its people.

The higher the degree of civilization of a race, the greater is its physical development. The history of civilization is nothing but the history of an improved physique. Babylon, Persia, Greece and Rome flourished so long as they were nations of hardy fighters. They achieved all their intellectual triumphs in this period and they all fell when wealth brought in luxury and effeminacy.

In the case of individuals also, those who have been intellectually great had not only heavier and finer brains, but had heavier and handsomer bodies than the rest of their fellows. Homer, Plato, Socrates and Solon were all products of the Greek gymnasium. Tulsidas, Kalidas and Valmik were noted for their splendid physique also. Lincoln was a wrestler; Gladstone a tree-feller; Huxley and Tennyson were great intellectually as well as physically. And this stands to reason.

The voluntary muscles are the true blood-suppliers to the whole of the organism. The brain of a person whose muscles are most thoroughly developed and frequently exercised will have the richest and fullest supply of blood. The muscles are both the protectors and tools of the brain. The more perfect their development, the greater the ease with which it can escape injury and perform its intellectual functions.

Education, no doubt, is the greatest gift a person can enjoy, but it is only when the body is not neglected. The body is not a dungeon for the soul, as some ignorant Hindus seem to believe, but the outward and visible expression of the soul, without which the soul cannot manifest itself. The only way to allow a soul to display itself fully is to take good care of the body, and any neglect in food, exercise and rest should be held sinful. Neglected things do not last very long, and the body is no exception to the rule. Any person, therefore, neglecting his body and not paying sufficient attention to its maintenance is a true enemy of his race.

Success only comes by dint of years of toil, and the battle to keep up one's position must be sustained. For this, not only intellect, but physique also is required. While a man of poor physique is always ailing and cannot earn sufficient for his living, a man of good physique and determination may make for himself a name and enjoy life at the same time.

A strong virile race commands the respect of everybody. Exclusive use of the body on the one hand, or the mind on the other, does not tend to the development of a human being. The mind and the muscles both need developing in turn. Physical efficiency is as much a *sine quâ non* as the passing of examinations. Mind developed, body neglected, simply produces a race of pigmies and renders its members only fit for a Lunatic Asylum. Their nerves snap under mental strain.

According to the Census Report of India, 1911, insanity in India is actually on the increase, and more so in the males than in the females which is a clear proof of overmental work. High castes show much the largest proportion, and Jats show the least as they are level-headed and unexcitable stubborn people with a mental equilibrium not easily disturbed. Being chiefly agriculturists, education is not of much use to them. They therefore do not go in for examinations so much.

Those who know best about India and its peoples are of opinion that, under the modern conditions of easy travelling and comfortable life, even the fighting races of India are deteriorating. It is said that every race in India has, within the last 50 years, become an inch shorter in stature ! And, as is well-known, physical deterioration involves intellectual and spiritual deterioration also ! The statement may be somewhat exaggerated, but there is no doubt about the low vitality of the Hindus.

The Census Report of India, 1911, takes the two main religions of India and shows the steady decrease of Hindus during the last 30 years and an increase of Mohamedans, and points out that, although living in the same country and under similar conditions, Mohamedans are more fertile than Hindus and their chances of life are better. More Mohamedans are born ; fewer of them die in the first 20 years of life ; and a great many more live to advanced ages. Diabetes is not so common. The causes of this greater fertility and vitality are mentioned as follow :—

1. Their diet is more varied and liberal.

2. Their social customs are better. The age of marriage is much later, and the physically unfit are not married to the same extent.

3. Mohamedans are proportionately more in trade and professions and, therefore, less subject to famine and better off than Hindus, who depend mainly on agriculture (85 per cent of these are said to be agriculturists). The agricultural labourer is the worst paid man in India.

As the matter is serious, each of these causes requires some consideration.

Food.—This is the most serious question, and as I have discussed this point in Chapter IX of this book, I propose to make some general remarks only now. The ingredients of a Hindu diet are good enough for ordinary requirements, but the food should be better prepared and made more suitable to the occupation. There is a saying that one man's food may be another man's poison, and this is perfectly correct. What suits one may not suit another, and it is unreasonable to suppose that one kind of dietary will suit anybody and everybody and under all circumstances. The question of food should, therefore, be left to the common sense of the individuals. It is purely a personal matter, and one's religion should have nothing to do with it. Because two persons differ in their opinion as regards the food value of certain articles, it is no reason that they should fall out or hate each other. One should learn to tolerate the other.

It is not the Hindu food, but its preparation and its monotony which upsets one's digestion. Vegetarian food always takes a longer time to cook and requires care.

The "chowka" system has spoiled the taste of food. Many people cook their own food ; and in some places food cooked even by members of their own families is not eaten, while they journey by Railway, starving for days together. This "kitchen-religion," carried to extremes is killing all the spirit of co-operation, all incentive to foreign travel, all enterprise and all fellow-feeling amongst the Hindus. The "chowka" system serves no useful purpose ; it simply alienates persons of the same family. There is no time better for social intercourse than the meal hour. It secures society and also regularity in meals.

It is very important to bear the following points in mind in connection with a purely vegetarian diet :—

1. It is rich in carbo-hydrates and, with some exceptions, deficient in fat and nitrogenous substances.

2. It is bulky and produces a feeling of heaviness.

3. On account of its tendency to undergo fermentation in the intestines, it gives rise to much flatus and is not easily digested.

4. Protein molecules in vegetable food are enclosed within the cellulose wall of the cells which, even after much cooking, is so difficult to digest, and consequently makes their assimilation more difficult. No less than 20 per cent of vegetable protein is passed out with the stool and wasted, while only very little, not more than 3 per cent, of animal protein is passed out. Moreover, animal tissue, being more akin to our tissue is naturally more readily assimilated than vegetable food, thus saving a large amount of energy for digestion and absorption.

5. Protein is essential to life and, as a sufficiency of it cannot be got from vegetable food without using an enormous quantity of it, milk preparations must be used by vegetarians in liberal quantities to keep the bulk within limits.

6. For strength and endurance the vegetarian diet now prevalent in India is inferior to none, and for a manual worker, it is an ideal food for the country. Its drawback is that it requires a lot of hard work to digest it and is, therefore, not suited for those who lead a sedentary life.

From what has been said it is, I hope, clear that it is not the food itself but its misuse which has brought about the low vitality of the Hindus. Food of anybody and everybody remains the same as it was centuries ago, but the advent of Railways, motor cars and other means of conveyance have brought on luxurious modes of living and made physical exercise a thing of the past. There is nothing religious about food. The system demands food according to the work it is called upon to perform ; and it is nothing but right that our food should vary according to the occupation we choose to adopt. Without some reform in the system of our diet, we cannot hope to survive in the competition we are now meeting with, in every walk of life. It is true that the habits of thought of generations cannot be shed in a day, but a nation desirous of existence should march with the times and make use of what is known up-to-date.

In diet alone lies the key to nine-tenths of our present lowered vitality.

2. *Social Customs.*—The social customs of the Mohamedans are undoubtedly better. Marriage is not universal. The age of marriage is much later, and the physically unfit are not married to the same extent as they are among the Hindus. I have already discussed these points in Chapters II (Heredity) and III (Marriage) of this book. All that is necessary here is to point out that every medical opinion collected in this connection by my friend, the late Rai Bahadur Baijnath, condemns this pernicious custom.

Dr. I. M. Mulick says: "Thus, just before completing the second decade of life more than half of our boys are married with girls who are of still younger age and quite immature. Very often they are burdened with a family long before they can help themselves. It can be well imagined what a severe check it is to their health and vigour which disables them for the necessary struggle for success in this hard world."

Sir James Roberts, Surgeon to H. E. the Viceroy, writes: "On general lines, early marriage is a mistake. A woman produces her best children from 25 to 35. If her child-bearing begins at 15, her children show frail constitutions throughout life."

Mr. Jesse, the Principal of Meerut College, gives the results of his observations on college youths as follows: "Mohamedans marry rather later, eat less sweets and oily food, as they eat a good deal of meat. A lot are more active than the Hindus. Consequently, I cannot help thinking that possibly (1) Early marriage, (2 Too much sugar and ghee, ; (3) A tendency to a sedentary life, once the inducements of school or college games are lacking, may account in part for their liability to Diabetes."

Dr. M. N. Ohdedar of Lucknow writes:

"Marriage of young people is the curse of the country."

The late Dr. Hari Datta Pant wrote: "Early consummation of marriage reduces vitality and renders one prone to these (Tubercle and Diabetes) diseases."

Dr. Bhopal Singh, Professor of Agra Medical College, writes: "Early marriage has a decided effect in lowering the resisting power to diseases of all sorts, especially lung troubles."

Col. O'Meara, Principal of Agra Medical School says: "I certainly think early marriage causes great loss of vitality."

Dr. D. N. Ray of Calcutta writes: "Early marriages as well as bad habits without knowing their future consequences in early school life have a great deal to do with the deterioration of the constitution."

Dr. C. A. L. Moyer, Chief Medical Officer of Baroda, writes: "Early marriage leads to untimely exhaustion, weak offspring, and, with the advent of a family, to increase of worry in finding means of subsistence—conditions favouring the development of diseases."

Dr. Williams of Agra says: "Early marriage is one of the most potent causes which has devitalised the Hindu race."

Similarly, all our public men of authority condemn early marriage in unmitigated terms. Some say that it is not the early marriage, but early consummation of marriage, which is injurious; but once a girl has been married early consummation is simply a question of will and pleasure which very few Indian parents exercise judiciously. A son is a religious necessity for a Hindu; the sooner he gets him the more he is pleased.

Early marriage is one of the principal causes of illiteracy of the women of India and of infant mortality, due to their ignorance in rearing their own issue.

The marriageable age has of late been raised among certain sects of India. But still there is plenty of room to push on this most desirable reform. 2,000,000 girls, according to the Census Report of India, are still married before the age of 5; 2,000,000 before the age of 10 and 80,000,000 before the age of 14! All that can be done against this evil social custom is to go on fighting until the evil is eradicated. The signs of the times are in our favour. The universal system of marriage has lowered the quality of our stock; but new social forces are now moulding the life of India. Life in India, at present, is in a transition stage. It is a moving picture and not a dead photograph. Education, foreign travel, rapid communication and the printing press are the mines which have blown up the obstacles to India's progress. The ancient institution of caste is being moulded by great dynamic forces, especially by foreign travel. Young men are daily coming to Europe for education or business, and every one of them is a great social asset. The present European war has thrown about 1,000,000 of Indians of various castes and creeds among the modern nations of the world, and they are fighting side by side with their British and French comrades. They are bound to see the devoted work of women in nursing the sick and the wounded; and the knowledge gained should permeate the masses. All social reformers have, therefore, every reason to rejoice and not think that their good work must cease. They should help to lead the country in the path of individual enlightenment and to recognize that improvements carried out hastily are the precursors of reaction and apt to stop progress. Young men should be full of hope, self-confidence and earnest desire for national progress. They must have a due sense of the changes wrought in social and national life by the progress of time.

Looking at our present situation in the civilized world, and comparing ourselves with other civilized nations, it is clear that we have not as yet learnt the agreeable art of adapting ourselves to our new environments of life. But by nature we are a conservative people and, unless forced by a combination of circumstances, we do not readily or willingly adjust ourselves to our changed surroundings. The world is fast changing and of this there are ample and visible proofs all round. The march of progress is slow but steady. Quicker methods of transit and rapid communication with almost all the parts of the civilized world, wide asunder, afford us vast facilities for the study and patient observation of many useful problems of daily life that confront us at every step. This change has also placed within our easy reach a vast amount of useful literature on various subjects, treating of moral, social, religious and political questions of the day—thus enriching our minds with a mine of precious wealth of knowledge and, giving thereby, a new direction to the current of our thoughts. These things have widened the vista of our vision, increased our knowledge and made us wiser than before in every sense of the word. A general sense of earnestness to better ourselves has been awakened but there is at present a lack of uniformity in the methods we have selected. Different ideas prevail about taking advantage of the opportunities presented by Western influence. Some are over-zealous as regards social and other reforms and cry down all that is admirable in our ancient social customs, thus estranging themselves from the majority. One effect of Western influence, however, has been the awakening of us to our weak points. All cannot be of the same opinion. Honest differences on social, domestic and religious subjects must remain, and discussions are most desirable. Instead of remedying the defects in ourselves and imitating the virtues of the far Western races, some of us have to some extent adopted their vices and thus lowered our vitality still more. Some of our young men, owing to the absence of the restraining influences of their ancient religion, appear to have become dangerous free-thinkers and have no religion, or are very indifferent to it. This is sad. We must, therefore, learn to rise slowly but steadily, as slow and steady always wins the race.

The most powerful obstacles in the way of our social progress were :—

1. Our natural conservatism and apathy to move.

2. Restrictions imposed upon us by the trammels of caste and early marriage under the cloak of religion.

3. Blind faith in the time-honoured customs and traditions of the past. The average Hindu has exaggerated notions of the past greatness of his ancestors. He lives in the past and leaves the present to the future.

These, under modern forces, are gradually giving way.

3. *Mohamedans more in trade and professions.*—Most of the Mohamedans, by virtue of their trade and professions, live in towns where sanitary conditions are better and their business brings in more money. The Hindus, being mostly agriculturists, one would think that this outdoor life and plenty of fresh air would help them to increase their vitality and, had other things been equal, this, no doubt, would have prolonged their life, but man cannot live on air alone. He must have sufficient to eat. Repeated famines, high prices and the low wages which a farm labourer gets in India, hit him very hard, and no doubt he is the worst paid man in the country. Failure of crops soon sends him to the money lender, thence to the crematorium.

Some of the educated Indians of means have paid attention to industrial activity. The efforts of some have been crowned with success ; others have been disappointed at the odds against which they have to contend. Their great misfortune is the lack of special training and the want of co-operation among the Indian public. Every branch of business requires special training, and *this*, our young men do not possess at present. Most of the failures are due to this cause. In Europe, too, in the early days there was a similar state of affairs. Things are well-established there now, and we all sincerely hope that India also will see a more prosperous day dawn before long. The hope of the country lies in the development of industry and commerce, and not in the Government appointments which most of our educated Indians hanker after so much.

Prevalent diseases causing premature deaths amongst educated Indians.—An Educated Indian, in medical phraseology, might be called a compendium of the various diseases to which human flesh is heir. Diseases of the digestion and power of assimilation are his principal enemies and are, undoubtedly, due to his sedentary habits and want of physical exercise in the open air, combined with irregularities and indifference about his food and drink. He is a vegetarian as a rule. Vegetarian food is excellent for those who take a lot of exercise, but the modern young man is a brain-worker and hates the idea of using his limbs. A large percentage of starch and sugar and ghee soon produces dyspepsia, obesity and flatulence, and upsets the whole process of digestion, laying the foundation of other more serious diseases affecting the liver and its functions.

All the organs of our body are more or less connected with one another by a common chain of relationship, binding them together; and, if one of them is thrown out of gear, the whole system is affected, and the foundation of many serious evils, too numerous to mention, is truly laid. Whatever induces a general weakness of the system prepares the soil for various disease-germs.

It is not my intention to go into the details of every disease which has a special reference to the Educated Indian. I simply invite attention to two of them—Tuberculosis and Diabetes—which, every medical authority agrees, are most prevalent, and like two cancers, are eating away the Indian race in general, and our educated men in particular. The race is being decimated not by one sword, but by two. One sword (Tuberculosis) hangs over the head of the race at one end, and kills as many of our young men in schools and colleges as it can fall upon. Those who, by sheer good luck escape at this end, are caught at the other and, just when they begin to be useful to their family and their country fall victims to the other sword. It is now an undeniable fact that the allotted span of life of our educated men is steadily decreasing and very few of them enjoy life for over 50 years.

Tuberculosis, Phthisis or Consumption is the premier disease of adolescence, and the mortal enemy of our young men. Those who have made a special study of this disease and are well able to express an opinion, hold that more than 50 per cent of our students are potentially tuberculous and develop the disease in one stage or another and die of it. Fortunately, the disease, its nature and causation, are now well-understood and therefore it can and must be controlled. It is a disease of microbic origin, and infection passes from person to person, provided the soil is prepared by debilitating influences, such as severe mental strain, sexual excess, insufficient food and insufficient fresh air. Cheap food, bad air, ill-ventilated houses, want of sunlight in the lower parts of the houses and overcrowding fan the disease, as the wind fans a forest fire. When a person is actually attacked, there is not much chance of recovery left for him. The remedy lies in isolating those who are found to be suffering from this disease, and not allowing them to mix with those who are healthy. In Europe and other civilized countries, Tuberculosis is now a notifiable disease and every Tubercular case has to be notified to the Public Health authorities as lepers used to be in ancient days. Without such a law no correct information was possible, and nobody had an idea of the extent of mischief this mortal disease was doing, and, therefore, control was impossible. The patient's home, his household and his environments are now visited and every member of the household carefully examined. Tubercle Bacilli, as the germs of this disease are called, are found in the sputa of the patients and therefore nobody is allowed to spit in public places. Every attempt is, thus, made to prevent the disease at its source. No such attempt has, so far, been made to check the disease in India. Tuberculous patients spit anywhere and everywhere ; they walk about and mix with others ; houses exist, the lower parts of which have never seen the sun or the light for generations ; poverty is so great that every poor house is fearfully overcrowded and people are huddled together in small ill-ventilated houses. The disease is not notifiable. In these circumstances, it is no wonder that it is so prevalent and the infection is so great. The first step to be taken is to have the disease made notifiable. As long as things concerning public safety are left to individual care, they have never improved anywhere else, nor will they improve in India. The next thing is to have all the infected cases isolated from non-infected ones, for which frequent medical examinations are necessary at schools and elsewhere. It may not be possible to cure all the infected cases, but the stream of infection will certainly be checked ; and this of itself is a great gain.

Breathing exercises at an early age are an absolute necessity, in the same manner as keeping the bowels open. Singing is one of the best forms of exercise for the lungs; and it is unfortunate that singing is looked down upon now-a-days and not sufficiently encouraged amongst our school boys. It is said that 70 per cent of the school-going boys do not know how to take a long deep breath, and their lungs, therefore, never expand freely.

Diabetes.—Diabetes is a more uncanny disease to deal with, as its cause is not very clear. It is certainly not due to one cause alone. It is one of the most common of the diseases of India, and, from time immemorial, it has been known to be more general among the educated Hindus than among any other race in the world. It is a disease of disordered metabolism in which the patient has lost the power of ultilizing carbo-hydrates in proportion to the severity of his disease, and so passes out sugar in the urine. Carbo-hydrates, beyond his assimilation limit, are of no use to him as food; and it is simply a waste of energy to persist in eating what does not agree with him.

Recent observations and experiments have made it quite clear that Diabetes is neither a clinical unit, nor a pathological entity. The term undoubtedly includes many pathological conditions which all possess, the one common symptom of excess of sugar in the urine.

The mention of "sweet" urine, so characteristic of Diabetes, is first met with in the "Ayur Vedas," the very old documents of the ancient Hindus. The disease was evidently known to them; and Susruta, the great Hindu physician of the 7th century, was quite familiar with both the clinical picture and the sweet taste of the urine which he called "Madhu meha" (honey-urine).

Age, sex, race, social position, heredity, obesity, gout, climate, habitual luxuries, profuse consumption of carbo-hydrates, sedentary habits, sexual excesses, a high state of nervous tension and hundreds of other things have been mentioned as causes leading to Diabetes. But there is, to my mind, no doubt that one cause by itself, no matter how potent it is, is not enough to bring about this condition.

Some people blame rice-food and excessive sugar-eating more than anything else, and recommend animal food. But the Chinese and the Japanese are rice-eaters and yet enjoy almost complete immunity from Diabetes. Burmans are another rice-eating race, and Diabetes is very rare among them. They are Buddhists by religion and do not worry about tomorrow as the Hindus do. Sugar plantations are common enough in India ; but Diabetes is unknown among those who work on them, although they consume enormous quantities of sugar. The food of men and women is much about the same, and, if anything, women are still more sedentary and confined to their houses ; but they suffer from Diabetes much less than men do. The Chowbey Brahmins of Muttra are noted sweetmeat eaters and consume an enormous lot, but because they take life easy and do not bustle and worry, they do not suffer from Diabetes.

Of the 217 cases of Diabetes which had come under my treatment during my practice in India as a Civil Surgeon and which I had tabulated for my M. D. thesis, it was noticed that 50 per cent of the total cases got the disease through mental strain, and 16 per cent were connected with money affairs. The rest were either temporary cases associated with malaria, enteric fever, and poisons, such as Chloroform, Alcohol, &c., or were secondary to acute infectious diseases, such as measles, small-pox and influenza. Diet as a primary cause, was very rare ; but when glycosuria was established carbo-hydrates undoubtedly aggravated the disease and made the cases worse. Of all my cases, 41 per cent bore the hereditary taint.

As regards race, 128 of my patients were Hindus and strict vegetarians, 43 were Mohamedans and 46 Christians and other sects. Thus Hindus formed the majority, and as Hindus form the bulk of the population in India it is natural that most of the sufferers should be Hindus. But, apart from this fact, there is no doubt that Hindus, as a race, are highly emotional people, and diseases of nervous origin are most common among them.

The bulk of the patients, *i.e.*, 179 out of a total of 217, or 82 per cent, were between 30 and 60, which is the most exacting period of a person's life, and only 40 females against 177 males came in for treatment.

Painful, distressing or irritating emotions, as grief at the loss of a child, a violent fit of anger or fright, sudden loss of money or appointment, litigation of a harassing nature, excessive mental work, neglect of exercise and sleep, always acted as occasional exciting causes of the disease. Americans have a saying—"When exchange falls glycosuria rises ;" and there is no doubt that nothing favours the disease so much as money trouble. I have seen it frequently among contractors.

The disease is very prevalent among the Jewish races also, and they are another highly emotional people. Taking all these factors into consideration, there can, I think, be very little doubt that bustle and worry, which appear to be such essential features of modern life, are at the root of this evil. Some medical authorities say that dieting is the only cure for Diabetes, but I beg to point out that prevention is better than cure. Take life easy, avoid bustle and worry, and you avoid the disease.

But this is the age of 'bottle' cures. People in general, and our educated men in particular, wish to defy every hygienic law; they wish to over-eat and indulge in all sorts of excesses; the use of muscles is repulsive to their feelings; they want to lead life in "comfort" which, to their mind, means without the use of physical exercise. When they get ill they run to a doctor, and if he fails to cure them by a dose of medicine, the poor man is cast down in their eyes and they run to another man.

After all what is said and done, it is evident that the remedy for the troubles we, the educated Indians, are labouring under, is in our own hands. The gravity of Diabetes is brought to our notice nearly every day. So common is the disease now-a-days that, every second educated Hindu over 50 whom we meet, may be diagnosed as a person with pathological sugar in his urine; yet he is absolutely unconcerned, makes no attempt to rectify his mode of living, goes on living in the same old fashion as if there was nothing the matter with him. He tries one or two doctors, and if their dose does him no good, he gives himself up to oriental fatalism and meets his death with calmness. He meets his fellow-beings who have to work hard from morning till evening to earn their bread by the sweat of their brow and live on a simple and spare diet, and never have anything the matter with them and live up to a ripe old age, and yet he takes no lesson. He reads history and sees for himself that luxury brings on physical deterioration and, like a subtle poison, eats into the vitals of a nation, yet he takes no notice and does nothing to minimise the evil. He sees how Europeans keep their health by taking physical exercise every day. In every station Europeans have their own club, where they go every evening for tennis and other games as a matter of religion and no amount of work stops them from this recreation; but our educated friend would imitate them in all other respects except this. He sees how careful cattle-breeders are about their stock, but, in the case of human beings, he pins his faith to universal marriage. Fit and unfit, all must make an attempt to produce a child ; if the constitution get deteriorated thereby, he does not mind.

He knows full well that the struggle for existence is much keener amongst the educated classes in India now than it was twenty years ago. It may not be in his power to increase his income, but surely he can control his expenses by attempting not to increase the family, but no ; married he must be, and trust to luck for means. Poverty, running into debt on the slightest excuse, overcrowding and severe mental strain are, therefore, the order of the day ; and as long as this state of affairs lasts, it is not likely that there will be production of a stamp of men of sufficient mental and physical vigour, to take a strenuous part in the modern struggle for existence, without succumbing prematurely to those diseases which come in the wake of an effete civilization.

The root of all these evils is to be traced all along to improvident habits and the disregard for hygiene—hygiene of the child, school, home and of his own body and mind.

Education, to be perfect, should aim at the harmonious development of all the faculties of the human being, of which physical exercise is not the least important.

Chapter XXII.

CONCLUSION.

One would have thought that all matters bearing upon sanitation would have received almost the first attention of mankind, since sanitation is directly concerned not only with our continued existence in the world, but also with the healthy effectiveness of our minds and bodies. But, somehow, in ancient days there was an idea that the maintenance of order, the prevention of crime and the exclusion of foreign enemies were the sole duties of administration, and that sanitation was no part of the duty of Government.

The development of civilization, however, and particularly the invention of machine transport, soon brought on a revolution in thought by increasing the potentiality of life, by bringing the different parts of the world into much closer relations, by creating international rivalry in all things and by augmenting the power of strong nations over weak ones; and Governments began to perceive that their function was to do everything possible, not only for dispensing justice, but also for the maintenance and the development of prosperity amongst the peoples subject to them.

It is a note-worthy fact that civilization always tended to confine itself only to certain parts of the world, and has been almost entirely excluded from others. Many explanations have been suggested to account for this fact, such as influences of climate, fertility of soil, proximity of the sea, and so on.

But these cannot be accepted as entirely satisfactory explanations. Tropical Africa and South America generally possess an extraordinarily fertile soil, and often an excellent and warm climate, where, one would have thought, the arts of civilization would easily have flourished; and if it is not so, there must be something in these parts which has retarded the progress of humanity there, in spite of their proximity to the sea. We now know that Malaria and other parasitic diseases of men and cattle abound in these parts and these must have paralyzed almost all attempts towards progress. On the other hand, we also notice that, where these diseases do not exist, civilization has certainly continued to improve.

We are also struck by the fact that in the olden days when sanitation was not the business of any governing class, the priests took the opportunity and made it their business. Many so-called religious observances were really sanitary observances. Many of the Hindu customs, such as frequent washings of hands, preparation of food by high caste persons, daily baths, &c., had a sanitary origin and tended to limit the spread of parasites and bacteria from man to man. It appears to be a weak point in the human mind that we do not fear the pains of the present so much as those which we imagine may betake us hereafter; and a priest, who was able to ward off both contingencies had much greater power than the poor sanitarian of to-day who hopes to ward off only one evil.

The ancients, however, must have adopted some measure of public sanitation also, in addition to the private influence of the priesthood, as there are so many references to the sanitary measures of town cleaning; and it must have become clear to them long ago that disease is very often associated with filth.

Later on, when prosperity and indolence brought on carelessness in sanitary matters, and Epidemics, such as Cholera and Small-pox began to break out, the authorities, not understanding their nature, began to call in the aid of astrologers and priests, in order to invoke various deities, as can be observed during the Cholera epidemics of to-day. Pestilences were then looked upon as being acts of God.

The modern history of sanitation began from the time when Spain, Portugal, France, Holland and England developed their navies sufficiently to enable them to explore tropical coasts and then to make their conquests in land. Tropical diseases then began to attract attention.

The great principle of preventive measures which has done a great deal more for the world than any other reform, was started in England, and the Luther of this change was Jenner, who discovered Vaccination against Small-pox, at the end of the 18th century; and India soon began to reap the fruit of this discovery. Vaccination is said to have been introduced into Bombay and Madras in 1802, and the opposition to it, in those days, was so great that Vaccinators were, at times, assaulted. Now the benefits of vaccination are so evident that it is being adopted everywhere throughout the country, without the smallest opposition. The effect of this change has certainly been enormous. It is within the memory of most of us what a dreadful sight Small-pox used to present 30 years ago. Children were looked upon as "Sitala's" food, and no child was considered safe until he had had the Small-pox. Deeply pitted, ugly faces, some blind, some one-eyed, were seen everywhere. Now it is very rare to meet a child with Small-pox marks. All this shows what an enormous benefit has been conferred upon the people within the last 50 years, through one of the preventive measures.

The middle of last century may be counted as the date on which Sanitary science reached its maturity, as it is only from this date that public sanitation has developed and important pathological discoveries have been made. It was then discovered that many of the principal diseases were carried by insects and other arthro-pods, and several methods for their prevention have been employed ever since.

India possesses a very intelligent and industrious population of its own, and many of the greatest sanitary improvements have originated there, cremation being not the least of them. European hygiene, unfortunately, is not always in harmony with their innumerable customs, and therefore there is, at times, a substratum of opposition from them to English principles. This has been over-rated by the Government, who often excuse themselves for their own inaction by attributing sanitary defects to such opposition among the governed. Officials, when criticized for bad sanitation, say that the people are not yet sufficiently educated to attend to sanitary matters and that nothing further can be done until they have received a higher degree of education. Undoubtedly public education is a factor which does count considerably in the sanitary programme. Sanitation can never reach its highest degree of efficiency, unless the public is educated to meet it.

Nations have the sanitation as well as the Government which they deserve, *i.e.*, if they are not deserving of good sanitation, they may continue to die as much as they please. But by far the most important portion of public sanitation does not really depend, at all, on the will of individuals, and does not even lie within their power. An individual, after all, is an insignificant unit, and however much he may strive to maintain the hygiene of his own house, he will not achieve complete success, unless his neighbours, and the authorities in general, help him. The same point arises in every sanitary scheme. The masses cannot reduce mosquitoes, however much they may wish to do so, unless the authorities organize the campaign throughout the area under their charge. It is, therefore, cruelty to lay the onus for mosquito reduction upon the education of the masses. So also with epidemic diseases. In the case of great epidemics, the individual citizen is absolutely powerless. Take for instance the case of Plague. What can the private townsman do in this case? He has to make his own living and that of his children. His time is occupied all day long, and he returns to his home in the evening. Is he then to go out and kill rats? To prevent infection the whole onus lies, as it ought to lie, upon the Government. Direct opposition of the ignorant public which the Government met with in their early preventive measures against Plague, was due to lack of tact on the part of those non-experts who were put in charge of those measures. These gentlemen, with their favourite formulæ of isolation, fumigation and disinfection went on with utmost rigour, worrying the already worried populace into a state of desperation, though the infection really lay amongst the rats.

The time may come when sanitary administration in India will be put upon the same basis as Public Works and Education, and then it will receive the attention it deserves. At present the Sanitary Department of India resembles the armies of certain small states consisting more of generals, colonels, and officers than of privates. Fully trained officers are no doubt absolutely necessary, but without a proper staff of sanitary labourers, villages and towns cannot be attended to. Battles cannot be fought and won without sergeants and privates.

Sanitation is the ultimate basis of all prosperity, and should be the first plank in the platform of every scientific and civilized government. Nearly all of the useful legislation which has been adopted by the world is really legislation aimed at improving the sanitary condition of the people. Destitution, squalor, slums, ignorance, much vice and crime are really the children of insanitation.

Until such time of beneficial legislation comes for India, and judging from the activities which have been displayed during Lord Hardinge's Viceroyalty, such time does not seem very far off, the people must fall back on their own resources and do whatever they can to lead a healthy life. They have their full share of the choicest gifts of Heaven, namely, the Sun, light and air; and if they only make full use of them, most of the preventable diseases will disappear before long.

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